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THE PRACTITIONER:

A Monthly Journal

OF

THERAPEUTICS.

EDITED BY

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THE PRACTITIONER.

JANUARY, 1872.

Original Communications.

ON THE DIAGNOSIS AND TREATMENT OF SCROFULOUS ANGINÆ.

BY DR. E. ISAMBERT,

Vice-Professor at the Paris School of Medicine, Physician to the Paris Hospitals, and specially entrusted with the laryngoscopic service of the Assistance Publique.

'ASES of angina (or diseases of the pharynx and larynx), which ıay be referred to scrofulous diathesis, are commonly met ith in practice, yet they occupy but a very restricted space in orks on pathology, one certainly not in keeping with their equency and importance. I do not mean to say that they have ɔen overlooked or unnoticed; but, for want of a methodical ɜscription, they have not taken a fit place amidst the well-aracterised varieties of diseases of the *primæ viæ*. When we rn to the classical authors for the articles which ought to be voted to these cases, we are surprised to find but short ɪtices of the scrofulous anginæ, which seem to be written ɔm a theoretical point of view, or with the object of assigning em a place in a complete nomenclature of disease, rather than ɜscriptions made from actual observation, and showing us the stinctive characters and the special lesions of an affection

which we but too often confound with syphilis, tuberculosis, and even the malignant degenerations of the pharynx and larynx. In the general treatises on pathology which we possess, the chapters devoted to chronic anginæ do indeed recognise a chronic catarrh of a scrofulous nature: they admit especially that chronic amygdalitis (or rather hypertrophy of the tonsils) and that granular anginæ are frequently associated with the strumous diathesis; that among ulcerated anginæ, scrofula vindicates the possession of a certain number of them, but they do not afford us the means of recognising those hypertrophies and those ulcerations, and of distinguishing them through characters which are properly theirs, from ulcerations of other kinds which may be confounded with them.

My history is that of the majority of investigators who have preceded me in the study of these diseases: my first knowledge of scrofula of the pharynx and larynx was acquired through mistakes of diagnosis and treatment; the impotence of the anti-syphilitic treatment against certain ulcerations, and, more frequently still, the aggravation of these morbid phenomena under the influence of this treatment, showed me that I was in error, and that the case was not one of syphilitic affection, but belonged to a malady which required powerful tonics. Moreover, the general characteristics of scrofula presented by some patients indicated the diathesis to which I should refer these atonic and obstinate ulcerations. I must, of course, have met with many such cases at my laryngoscopic *clinique* during the several years that I have been entrusted with that service at the Bureau Central of the Assistance Publique; but three cases which I had an opportunity of observing almost simultaneously in 1870, at the Hôpital St. Antoine, called my attention to the subject, and since then, that is from the moment I had begun to study and make out their distinctive features, cases of strumous anginæ have constantly presented themselves to my notice.

It is not, however, only by the help of the two means which I have just mentioned that we must endeavour to become acquainted with the initial manifestations of pharyngeal scrofula. Undoubtedly, first to state the general characters of scrofula in patients, and then to draw an inference as to the strumous nature of anginæ, is a rational method, and an excellent one for

studying lesions which are as yet but little known, and for associating them with certainty to scrofula; but in many cases this method will fail us, because scrofulous anginæ, even of a somewhat serious character, are commonly met with in patients who do not present the evident signs of a strumous diathesis, but to whom we may fitly apply the softened and more euphemious expression of *lymphatic constitution.* On the other hand, if the failure of an anti-syphilitic medication be in many cases a useful touchstone, exemplifying the adage, *Naturam morborum curationes ostendunt,* it is not less true, that this touchstone of treatment must be employed with a certain reserve, because it may not only prove a loss of time, but bring on an aggravation of disease, and sometimes expose the patient to very serious consequences. I do not pretend to say that in the present state of our knowledge we shall be able to recognise with certainty, by means of special characters, the lesions which belong to scrofula, especially at their outset; but I think that if the physician is warned of their existence and of their frequency, he will at least reserve his judgment, and act with prudence in instituting a treatment, until the evolution of the disease and a more protracted inquiry into the former history of the patient, will have furnished him the means of forming an opinion with a greater degree of probability. Moreover, the subject is more complex than it appears at first sight, for, beside the evident manifestations of scrofula, we often meet this diathesis associated with syphilitic or with tubercular manifestations; I shall endeavour, however, to point out a few characters which seem to me to distinguish the benign manifestations of scrofula, and the outset of its malignant manifestations, in the hope of laying down even now some landmarks that may serve for a provisional description which my further researches, and above all the co-operation of my professional brethren, will enable me to complete at some future period.

Scrofula of the throat is before all a chronic affection, almost indolent. It is seldom attended by hypertrophy of the cervical ganglia; so it long escapes the notice of the patient and the investigation of the medical man. As long as the disease is limited to that form which M. Bazin (of St. Louis) calls strumous catarrhal angina, we must be forced to content ourselves with

the general characters of the disease pointed out by that writer; it is even doubtful, as has already been observed by M. Lassègue, whether hypertrophy of the tonsils, although it often coincides with a strumous constitution, stands in the constant relation of cause and effect with this diathesis. In respect to glandular angina, I must confess that for a long time to come no special character will probably be found to distinguish the follicular hypertrophy due to scrofula, and particularly to the lymphatic constitution, from that which is met with in subjects affected with herpetism, arthritism, and tuberculosis. There exists, however, a character that I would not set down as yet with certainty, but which has seemed to me in some cases to indicate the scrofulous nature of hypertrophy of the mucous follicles; it is a slight degree of ulceration or only of erosion of the pharyngeal follicles. These little glandules seem to the eye as if they had been abraded at their apex, and the abrasion presents a greyish yellow fundus, of an adipose aspect, analogous to what we meet with in true ulcerations. These follicular erosions are observed on a pale, discoloured mucous membrane, where we see only a network of very minute superficial capillary vessels. They may be distinguished by this appearance from the glands resembling pustules which are seen in certain cases of follicular angina, produced by the habit of drinking or the use of tobacco, which has the effect of giving to the pharyngeal mucous membrane an inflammatory redness of a more or less deep hue, and a varicose development of the small veins which run under the membrane. This erosion, combined with the pale hue of the pharyngeal mucous membrane, is much more like those appearances which may be observed in cases of pulmonary phthisis and pharyngeal phthisis when they attain the stage of advanced cachexia; that is, when there are cavernous excavations in the lungs and deep ulcerations of the larynx. In scrofula, on the contrary, erosions of the pharyngeal follicles make their appearance at a much earlier period, and before any serious scrofulous lesion of the neighbouring organs. Except this difference in the precociousness of its appearance, I am acquainted with no character which may help to distinguish this slight lesion of scrofula from the similar lesion of tuberculosis.

The true ulcerations of the pharyngeal mucous membrane

furnish us with more certain diagnostic evidence. These lesions have seemed to me to adopt more particularly as their seat of predilection the posterior surface of the pharynx; or, at least, in many of the cases where I had an opportunity of observing benign pharyngeal scrofula, or strumous lesions in their initial stage, the posterior surface was the only one affected, and it was invariably so when ulcerations were to be found on other parts of the pharynx. Indeed, this special seat of the disease seems to me to form a pretty good character of scrofula, as syphilis seems to affect at its outset the soft palate, the columns, and the epiglottis, before attaining the posterior surface of the pharynx. Under this head, I am at complete variance with M. Bazin: this learned observer states that syphilis more often than scrofula first shows itself on the surface of the throat, and only at a later period appears on the cutaneous surface.[1] But the disagreement probably arises from the fact that M. Bazin in stating this opinion has not in view such mild and recent cases as those to which I refer: it is pharyngeal lupus which he opposes to syphilis, and the expression "syphilis first appears in the fundus of the throat," does not point out with precision the posterior surface of the pharynx, but may simply mean the deeper surfaces of the throat in opposition to the cutaneous surface. If this is the sense which we must attach to M. Bazin's statement, then we are quite of the same opinion; the deeply seated ulcerations of the throat and larynx do often precede, indeed, the cutaneous manifestations, whilst lupus follows an inverse course; at least my own experience until now justifies me in holding this view.

The ulcerations of pharyngeal scrofula therefore appear first, or most frequently so, on the posterior surface of the pharynx, somewhere about the situation of the root of the *luette;* but on lifting up the soft palate, or on looking for them by the aid of the laryngoscopic mirror, they are seen to extend also to the sub-palatine portion of the pharynx, as also to its œsophageal portion. Their aspect is sufficiently characteristic; they form irregular ulcerations, with sinuous edges, having an unequal or mamillated surface. They are not deep, and are quite indolent. The edges are not *taillés-à-pie;* they disappear

[1] Leçons sur la Scrofule, 2me édition, p. 567.

gradually into the ulcerated surface; they do not seem to be loose, neither are they curled up. The surrounding mucous membrane presents more or less the appearance of chronic inflammation; often it appears perfectly healthy, or it presents here and there in the spaces intervening between the ulcerations small fleshy buttons, not very prominent, and which appear to be only hypertrophied mucous follicles. A few days' rest, a course of tonics, and a few local cauterisations, speedily enough bring back the mucous membrane to almost its normal aspect around the situation of the ulcerations, while the latter persist on the contrary during a protracted period of time. The surface of the ulcerations is most frequently covered with a yellowish expectoration, or with a thick muco-purulent matter, which seems to adhere more strongly to the surface of the ulcerations than to the healthy parts of the mucous membrane. When this muco-pus is removed by means of a small brush of lint or of cotton, the ulcerated surface is seen, and presents not a greyish appearance, as is ordinarily said, but a yellowish hue, like fatty tissue, and a fretted appearance. Far from being deeply depressed, the ulcerated surface presents sometimes a bulging appearance, or its level is about the same as that of the neighbouring surface.

Sometimes the surface is somewhat bloody; at other times it is covered with pultaceous fibrinous products; but an appropriate treatment speedily removes these matters, at least in mild cases, and the fundus of the ulceration then presents only the adipose or lardaceous aspect; whilst the neighbouring mucous membrane resumes speedily enough its usual pinkish hue.

It is not, as may be seen from this description, with the old and deep ulcerations of syphilis that we can confound the pharnygeal ulcerations; but rather with the *plaques muqueuses*, whose fretted or mammillated surface they partly present. But besides their primary situation on the posterior surface of the pharynx (whereas the *plaques muqueuses* first show themselves on the soft palate), there are differences of hue which allow us to discriminate easily enough between the two kinds of lesions: scrofulous ulcerations present a yellowish surface; they are surrounded by mucous membrane, which is generally healthy, or of a pallid hue, or slightly inflamed, but returning speedily to its

normal colour. The *plaque muqueuse* is surrounded by a vermilion or purplish zone of some extent, in the midst of which the elevated surface presents a hue of a whitish-grey appearance, with opaline effects, which I think very characteristic, and which I have often had the occasion of showing to those who attend my *clinique.*

Such are the characters of the more simple cases; they are at least those which I noticed in the first patients who attracted my attention to this subject, and who presented themselves to my observation almost simultaneously. The first one was a female of about 40 years of age, whose case I attributed to a syphilitic origin, although she resolutely replied in the negative to all questions which I put to her touching this point, and although her body presented no signs whatever of former syphilis. At the end of a fortnight's treatment with a solution of iodine and mercury, analogous to the præp. de Gibert, and in which each spoonful is made to contain 15 gr. of iodide of potassium and $\frac{1}{66}$ gr. of the biniodide of mercury (an energetic medication, which modifies very speedily and surely syphilitic manifestations of the pharyngo-laryngeal mucous membrane), I was compelled to acknowledge that far from becoming cured the ulcerations extended, and that the general condition of the patient had appeared worse. She was paler, weaker, and complained of additional suffering. I immediately ceased this treatment, and prescribed in its stead first iodide of iron and cinchona, and soon after cod-liver oil. In a few weeks we had not only recovered the lost ground, but completely cured the ulcerations, which receding gradually under the influence of the tonic treatment, and of local paintings with pure tincture of iodine, soon left behind them only the brilliant cicatrices, almost pearl-like in appearance, and radiating like stars. At the same time, I remarked that the posterior pillar of the soft palate on the left side had contracted an abnormal adhesion with the posterior surface of the pharynx; it had become as it were engrafted there, and drew backwards the loose edge of the *velum palati.* Notwithstanding the curious appearance of this lesion, the voice was not sensibly altered, and deglutition was performed easily.

At about the same time, I received at my *clinique* a young boy

of fourteen, who presented in the pharynx ulcerations very similar to those which I have just described, and in whom the aid of the laryngeal mirror allowed me to observe the existence of even greater deformities of the pharynx. The left posterior pillar was stretched almost straight backwards on a horizontal plane and formed a kind of ceiling, which obstructed on that side the sub-palatine cavity of the pharynx and the corresponding roof; lower down, towards the larynx, I noticed on the right side as marked a deformity of the epiglottis. This organ, which formerly must have presented one of those marked *warps* which I commonly designate by the name of three-cornered hat, had been subsequently twisted on itself and broken as it were (as we often notice in the nasal cartilages of certain individuals), and it was strongly drawn to the right by a cicatricial adherence, which connected it with the corresponding posterior pillar. The remainder of the larynx, the vocal cords, could not be easily perceived on account of this conformation; still we managed to make out that they were perfectly healthy, and of whitish pearl-like aspect. In respect to the ulcerations of the posterior surface of the pharynx, they presented the yellow lardaceous appearance which I have above described. Enlightened by the preceding case, I put aside the idea of syphilis, and I subjected my patient to a tonic treatment and local cauterisations with the tincture of iodine. After a speedy amelioration and the return of the mucous membrane to its usual pinkish hue, the ulcerations remained altogether stationary during a long time, so that some doubts occurred to me whether syphilis was not after all the probable cause of these lesions. The youth seemed to be of an honest and straightforward character; repeated and careful examination of his body failed to show me the slightest trace of precocious debauchery or of former syphilis. However, and in the way of a trial, I submitted him during some time to an iodo-mercurial treatment, which produced no sort of amendment of the pharyngeal ulcerations, though it did not make them worse. I therefore now renounced this plan, and returned to the anti-strumous treatment; and after several months' treatment, after having changed the topical applications several times, I at last had the satisfaction of seeing the ulcerations contract, leaving only a few whitish cicatrices. In respect to the older cicatricial

contractions, they were acquired infirmities, which only a magical operation could modify; but as they were not inconvenient, and as on the other hand my wards were then crowded with wounded soldiers, I did not even entertain the idea of employing such means.

I shall return shortly to the alterations of the *velum palati;* but first I wish to add a few details to this description of simple ulcerations and the deformities which succeed them. A short time ago I had in my *clinique* a cured scrofulous subject, who bore in the further part of the pharynx the most perfect pearl-like and star-like cicatrices which could be seen. Yet this man had presented himself to my *clinique* in a very bad condition—at least in appearance. When he was admitted to the Hôpital St. Antoine, on February 9th, 1871, he was considerably debilitated by the hardships of the siege, and complained of such acute pain in the throat that deglutition had become impossible. All the isthmus of the fauces was covered with false membranes, or rather granular fibrine, and pultaceous products. The mucous membrane easily gave out blood when attempts were made to cleanse it; lastly, the posterior surface of the pharynx was covered with a vast ulceration of a lardaceous appearance, covered over with muco-pus and pultaceous products. The patient presented besides on either side of the neck two glandular swellings, with somewhat extensive ulcerations, and affording issue to a purulent fluid. This patient, who was very intelligent, was the first to confess that he had had syphilis. He ascribed his sufferings in the throat to this disease, and, by a sort of curiously placed self-love, he after this avowal stoutly defended himself from his being ever a scrofulous subject, this qualification seeming to him more injurious than that of syphilitic.

Notwithstanding the syphilitic manifestations which, according to the patient's account of himself, existed in his previous history, I carefully abstained from administering iodine and mercury, and at once commenced the employment of cod-liver oil, the soft extract of cinchona, and local application of pure tincture of iodine. The amendment of the various lesions soon ensued; the edges of the palatal perforation and the nasal fossæ lost their fungous character, their aptness to bleed, and their offensive odour. The crusts of the nasal fossæ disappeared, and the

mucous membrane assumed in all its extent a rosy hue, very like its normal aspect. At the same time the gums were slightly cauterised with chromic acid and soon recovered some vitality; and the teeth, which had been shaking in their sockets, acquired strength and solidity. In respect to the ulcerations of the pharynx, they are progressing slowly, but regularly towards cicatrisation, in the way which had already been observed in the third case above related.

The deformities of the soft palate will doubtless persist, but they are of little inconvenience as regards phonation and deglutition. During the last three months that the patient has been under my care I have not once observed any appearance of syphilitic disease; it is therefore doubtful that syphilis ever took any important part in the production of the pharyngeal injuries. It may be that it aggravated the effects of scrofula, as in other cases we see scrofula render interminable the manifestations of syphilis.

A short time ago I had under my care a young man affected with syphilitic ulcerations of the pharynx and larynx. The chief ulceration had deeply involved the loose edge of the soft palate near the root of the uvula, and this latter part being well-nigh destroyed in this situation seemed threatened with an imminent fall. The patient had been subjected during the two previous years to a protracted anti-syphilitic treatment, consisting chiefly of iodide of potassium, occasionally associated with mercurial pills, in addition to which he had stayed a season at the sulphurous waters of the Pyrenees. My first course was to resume the employment of the sublimate solution, combined with local cauterisation with the pure tincture of iodine at the outset, and afterwards with the ethereal tincture of iodoform. I was often compelled to suspend the use of mercury, it being ill tolerated by the patient, and to have recourse to iodide of potassium and tonics, combined with local cauterisation. Yet with all these means I was enabled to obtain only passing amendments, soon followed by a recurrence of the graver symptoms; so it occurred to me that the patient must have been during his two years' treatment over-saturated with mercury, and the alkaline iodides. Moreover, he presented all the features of a lymphatic constitution. I therefore advised

him last autumn to repair to the sea-side, and to take cod-liver oil and iodide of iron, and I have reason to expect that this treatment will be attended by better results; the last accounts which I have had of him have been very favourable.

From all that precedes it may be seen that scrofula acts much more on the nasal fossæ and pharynx than on the larynx. In the cases of middling intensity which I have related, the lesions are almost exclusively confined to the posterior surface of the pharynx and the arches of the soft palate. In the subject of my second case, however, it may be remembered that there was a cicatricial bridle, which considerably deformed the epiglottis. In the fourth case, the pultaceous products extended as low as the vocal chords, and the epiglottis was already ulcerated. Moreover in the cases recently gathered by M. Fougère, it was found that the larynx had been involved in several instances, and that even tracheotomy had been performed a good many times. I therefore believe that scrofulous ulcers may extend to the larynx as well as to the pharynx, but at a much later period of the disease. I have not yet in my possession any personal data which permit me to make out with precision the order in which the constituent parts of the larynx are successively involved, and this forms one of the main objects of my present researches.

At present, there may be seen at my *clinique* a female patient about 50 years of age, who presents a somewhat singular disease. The soft palate and the pharynx seem to be tolerably healthy, or at the utmost only affected with slight catarrhal angina. The larynx, properly so called, seems in a perfect state of health; the vocal chords especially present a perfect pearly hue. The epiglottis alone is completely altered, so as scarcely to be recognised: it is changed into a large, roundish swelling, split up in all directions, presenting a surface with round eminences and superficial ulcers. This localisation of the disease to the epiglottis at first suggested to the mind the existence of syphilis, which, as is well known, shows a marked predilection for this organ. There is nothing, however, in the patient's history, nor in her present condition, to justify this opinion, and her answers are stoutly negative. On the other hand, she presents the habit of scrofulous subjects; the nostrils and lips are large, cheek-bones prominent, and hue of the face earthy. Possibly this is a case

of scrofulous disease, although the pharynx does not show any cicatrix or deformity. Whatever may be the real cause of the presence of this cachectic condition, I have not dared to institute a mercurial treatment. On my last examination of the patient, I observed that the ulcerations of the epiglottis were extending slowly to the right arytæno-epiglottic ligament. My treatment for the time being consists in local cauterisations, and in tonics associated with iodide of potassium, and alternating with iodide of iron and sulphurous baths. Even should the hypothesis of a syphilitic taint be correct, I consider the patient to be so lymphatic as to justify the greatest reserve in regard to a course of mercury.[1]

It remains for me to say a word or two in connection with the manner in which the abnormal adhesions of the soft palate and its arches are produced. These adhesions, which I have attempted to describe in the preceding pages, had been noted long before my own observations. M. Verneuil has translated and annotated in the *Archives générales de Médecine* (1865, vol. ii. p. 422), a memoir by Dr. Julius Paul of Breslau, in which, subjoined to the author's own observations, is an analysis of various similar facts previously related by Dieffenbach, Czermak, Coulson, and Beyk. The deformities and adhesions of the soft palate, according to the views of these observers, are produced far too speedily to be attributed to a mere retraction of nodular tissue after the cicatrisation of the ulcers. Moreover, it would be difficult to understand how this process of retraction could have the effect of soldering, almost at right angles, the arches of the soft palate, which are almost visual, to the posterior surface of the pharynx. In those instances where it was possible to assist at the formation of the lesions, the soft palate, momentarily deprived of its arches, which had been cut through by the ulcerative process, was seen to wave to and fro like a flag in the pharyngeal fossa, and to be soon drawn near against the posterior surface through the draught of inspired and expired air, especially when on

[1] I do not present this case and the preceding one as instances of typical scrofulous angina, but as mixed cases, where syphilis is associated with scrofula, and which entail the greatest embarrassments in diagnosis and treatment. These uncertainties will necessarily become less as we attain a more precise knowledge of the characters of the true uncomplicated scrofula type.

account of a perforation of the roof of the mouth, or of obstruction of the nasal fossa, respiration had ceased to be carried on through this latter channel. The soft palate or the floating arches contract with extreme facility adhesions with the neighbouring parts, and become engrafted, as it were, on a novel surface of implantation.[1]

The physiological consequences of these abnormal adherences can easily be foreseen, and have been well described in Dr. Paul's memoir already alluded to. The results are a peculiar nasal twang of the voice, or at least false intonations, occasionally the return of fluids and food through the nostrils, the more or less complete obstruction of the posterior orifice of the nasal fossæ, retention of mucous secretions of the nasal fossæ and palatal portion of the pharynx; lastly, deafness, which occurs when the Eustachian tube is obstructed by ulcerations or cicatricial bridles. When these marked deformities are produced, they can only be combated by surgical operations.

These grave disorders, these persistent deformities, have been mostly ascribed to syphilis. It may be gathered, however, from the various cases belonging to Czermak, Beyk, and Paul, and recently collected by Dr. Fougère, that there are instances where scrofula alone can be accused. The cases which I have been able to observe lead me to think that syphilis has been too often blamed, or that, at least, it is only when syphilis is grafted on a scrofulous diathesis that these considerable injuries do take place.

Of course I do not mean to invalidate the testimony of highly authorised syphilographers, and especially those who have carried on their investigations on the extensive field of our special hospitals. But on the more limited ground of our laryngoscopic *clinique*, where we yet have the opportunity of seeing numerous cases of syphilitic laryngitis, I have scarcely ever had to witness those considerable ravages, those large perforations, those enormous losses of substance, of which authors write, and I must come to the conclusion that all that has been described in relation to this involves much exaggeration, or at least that too

[1] It is very difficult to prevent these adhesions from taking place, and Dieffenbach has proposed with this object to make a sort of hem on the loose edge of the soft palate.

great allowance has been made for merely exceptional cases, namely those of syphilis combined with scrofula. Indeed, a great deal too much is told us of perforated palates, of deep ulcers with well-defined edges, and of red copper colorations: such lesions are seldom met with in the pharynx and larynx, and neither the coloration of the mucous membrane nor the ulcerations which I have observed answer to descriptions which we read, and to which perhaps the aspect which more properly belongs to cutaneous manifestations has been too freely lent. The continual lubrication of the mucous surfaces, the uniform heat of the pharyngeal cavity, are circumstances which considerably modify and attenuate the gravity of syphilitic manifestations in the pharynx and larynx. At all events, the graver lesions belong only to old inveterate cases of syphilis, or those in which the disease has never been combated.

Now, in these extreme cases the diagnosis is usually easy: it is confirmed by the previous history of the patient, by the syphilitic manifestations existing in other parts of the body, or whose traces may yet be detected in the form of cicatrices. The same remark applies to those malignant scrofulo-dermata, those manifestations of lupus, which generally have attacked first the lips, the opening of the nostrils, the nasal fossæ, before destroying the roof of the mouth. The object of this paper is, on the contrary, to investigate the simple cases, the beginning of the disease, and, in connection with two affections which have the character of proceeding by successive onsets (*poussées*), to find out, as speedily as possible, some distinctive characters which may help us in differentiating between them, and in instituting a truly rational and efficacious treatment, so as not to await the supervention of irreparable injury.

I will therefore now endeavour to sum up, from a diagnostic point of view, the characters of scrofulous angina at its onset. Strumous catarrhal angina has not, as I have already mentioned, any well-defined character: the folliculitis and the amygdalitis which attend it can be distinguished from analogous affections due to other diatheses only by considering the general habit and constitution of the patient.

The scrofulous ulcerations of the pharynx constitute, on the contrary, a pathological type which may be recognised: they are

to be met with, according to their order of frequency, first on the posterior surface of the pharynx, next on the soft palate and its arches, seldom on the tonsils, on the palatal portion of the pharynx, and towards the Eustachian tube; lastly, towards the epiglottis, the arytænoid eminences, and the laryngeal infundibulum. They are almost indolent, and are not attended in the great majority of cases by inflammation of the cervical ganglia. This localisation of the outset, the absence of all inflammatory and painful phenomena, and of any radiation in the direction of the cervical ganglia, serve to distinguish them clearly enough from the syphilitic ulcerations which make their first appearance on the soft palate, are surrounded by a more extensive circle of inflammation, and are attended by greater pain and by inflammation of the cervical ganglia.

The appearance of the scrofulous ulcers is pretty similar to that of the slightly eroded *plats muqueux* (syphilitic patches); but they do not present the *opaline* or *iridescent* aspects which in the mucous syphilitic patches form a marked contrast with the *carmine colour* of the inflamed circle. The ulcerated patch of scrofula, though irregular and sinuous, like the syphilitic patches, is yet of a more pallid hue, of a *yellowish colour, similar to that of subcutaneous cellulo-adipose tissue.* It is but slightly depressed, and presents a rugged surface more or less covered with small eminences. It is surrounded by an inflammatory circle of a reddish colour, of small extent, of slight thickness, not at all loosened, and blending in an insensible manner with the ulcerated surface. This border speedily resumes its normal aspect under the influence of local treatment. Whilst the syphilitic patches of the pharynx are well enough defined, and are bathed by abundant and limpid saliva, scrofulous ulcerations are covered by *very viscous and adherent muco-purulent expectorations,* and sometimes by *whitish pultaceous* products. In the graver cases, we observe on the pharynx a dirty or greyish earth-like coating, which covers all the surface and exhales a more or less offensive smell, and *yellowish pimples acuminated* like small carbuncles. These malignant strumous manifestations may make their appearance at once, or at least without being preceded by other scrofulous phenomena in the neighbourhood. However, the deformation

and the abnormal adherences of the soft palate and arches which one sometimes meets on the first examination of the patient, would show that preceding outbreaks of the disease had taken place without being noticed.

The iodo-mercurial treatment modifies in a very short time pharyngeal syphilitic manifestations when they are not too inveterate. The same mode of treatment does not mitigate the scrofulous ulcerations, and indeed it makes them worse. They are then seen to become more depressed; their surface extends, assumes a liability to bleed, or is surrounded by œdematous borders. If the anti-syphilitic treatment be adopted as a means of diagnosticating the disease, we must bear in mind that it may become dangerous; and when at the end of ten or fifteen days at the utmost no favourable modification of the surface has supervened, we must at once renounce this medication and replace it by a tonic, anti-scrofulous treatment. When combated in time, and before the production of serious pharyngeal injuries, the scrofulous ulcerations cease easily enough. At first amendment rapidly takes place, but the ulcers afterwards close very slowly, much more slowly indeed than syphilitic ulcers. They are then superseded by *white cicatrices*, of a *pearlish aspect*, set in small clusters, sometimes *parallel* to each other, and at other times *radiating* in all directions. As to the *adhesions of the soft palate*, they persist in the state of accidental deformities, and it is only by means of staphylography, or other analogous operations, that we can hope to modify them.

The deafness which supervenes through the obliteration of the Eustachian tube seems to be beyond the reach of the resources of our art.

The complications which may supervene in these cases of scrofulous angina are spreading hæmorrhage from the bleeding surface of the ulcers, erysipelas of the pharynx, and œdema glottidis, which may call for the employment of tracheotomy.

The previous history of the patient and any concomitant phenomena will be of great importance in forming a diagnosis. On the one hand, we hear of previous syphilitic manifestations, we find traces of chancres, swelling of the ganglia of the neck, traces of former venereal skin eruptions, cicatrices of gummy

tumours; on the other hand, we find the strumous habit, the peculiar facies, the former existence of obstinate ophthalmia, of humours, chronic coryza, strumous abscesses, &c. Lupus of the face or of the nasal fossæ will generally have preceded pharyngeal lupus. However, this latter phenomenon may be the first manifestation of scrofula. When syphilis is grafted on a scrofulous constitution, there necessarily results a reciprocal aggravation of both affections, and it becomes very hard to make out what phenomena belong to either disease among the injuries which appear in the fauces: this coincidence will of course exert considerable influence on both diagnosis and treatment.

It is also to such general indications as the above, added to examination of the chest, that we must chiefly resort, in order to distinguish pharyngo-laryngeal scrofula from the ulcerations brought on by phthisis. Here neither the dates of the disease, nor the localisation of phenomena, are the same. It is only when phthisis is far advanced, and there exist pulmonary cavities, that we observe ulcerations of the posterior surface of the pharynx, and even then the ulcers are small, and quite superficial. They assume a greyish yellow hue, and do not present a surface covered with small eminences, nor the extensive ulceration of scrofulous patches. As to laryngeal phthisis it has a well-known localisation, and follows a regular course, from the arytænoid commissure to the epiglottis. It is especially inter-laryngeal, and travels upwards only during the latter stages of the disease, at a time when there can be no doubt touching the existence of phthisis pulmonalis. We must remember, however, that the co-existence of scrofula and phthisis is possible, and indeed common enough. The sixth case above recorded is a striking instance of this fact.

Neither herpetism, nor arthritism, nor catarrhal anginæ can produce ulcers which we should be liable to confound with those of pharyngeal scrofula. It is hardly necessary to refer to pharyngo-laryngeal diphtheritis, whose course and pathological products are too special and well known to involve any hesitation in respect to diagnosis.

As much may be said of the great majority of the acute anginæ, whether simple, rheumatic, erysipelatous, or belonging to eruptive fevers. I may just mention, however, that in small-

pox a scrofulous constitution may be the cause of various complications in the situation of the pharynx. In my clinical service at the Hôpital St. Antoine, I some time ago caused tracheotomy to be performed upon a young man in whom the convalescence of variola was attended with grave œdema of the glottis, and with blackish and fœtid eschars on the soft palate. During a long time I considered him, notwithstanding his stout denial, to be an old syphilitic subject, in whom the occurrence of small-pox had occasioned the return of former local manifestations; but now that I am better acquainted with strumous angina, I am led to believe that I was then quite mistaken, and that it was really a case of variola grafted on a scrofulous constitution. The same individual also presented a loss of substance in the pharynx associated with deformed cicatrices.

It may also just be questioned whether cases of laryngitis and of necrosed coryza which have been observed in the decline of typhoid fever, and which are not very common, may not be explained by the scrofulous habit of the patient.

There remains to be considered whether cancer and epitheliomata of the pharynx and larynx may not be mistaken for scrofulous ulcerations. A case related in M. Lassègue's recent treatise on anginæ seems to bear out this hypothesis. But this confusion cannot subsist for any length of time. The neoplasms of cancer appear in the form of tumours which obliterate a part of the pharyngeal or laryngeal fossæ: scrofulous lesions do not present any such growths. The offensive smell may also form an element of diagnosis: scrofulous ulcers speedily lose their offensive odour, whilst we cannot mitigate that of ulcerated cancer.

In respect to *treatment*, the relation of my cases has already shown what means seem to be appropriate under circumstances. They may briefly be summed up as follows:—

I. Abstinence from a mercurial treatment; or where there exists a positive mixture of syphilis and scrofula, a careful employment of that treatment, alternating with considerable periods of rest, during which iodide of potassium or of iron may be employed.

II. Speedy employment of the general treatment of scrofula:

cod-liver oil in large doses, iodide of iron, cinchona, wine, tonic nutriment, exercise in the open air, sulphurous baths.

III. Persevering employment of local treatment by means of the laryngeal sponge, tincture of iron, either pure or mixed with opium. The ethereal tincture of iodoform, chloride of zinc, or concentrated chromic acid, may be applied to the diseased surface. Chromic acid is admirably borne by the mucous membrane of the mouth, pharynx, and even larynx. It exerts a highly powerful action in œdema of the glottis in strongly astringing the membrane, and thus warding off the need of tracheotomy.

Perchloride of iron has been employed, especially in cases of bleeding ulcers.

Nitrate of silver does not seem to be of much benefit, unless when applied with the object of hastening the cicatrisation when already in good progress.

Various powders may be blown upon the surface, especially iodoform powder mixed with lycopodium.

Local douches made with the irrigator may be very useful, and exert an anodyne action in painful cases.

In respect to pulverised fluids, I consider their effects to be insufficient in such grave lesions.

The most important point of all is to form, as early as possible, a correct diagnosis, so as to institute a rational treatment and avoid hesitation, loss of time, and above all weakening measures, which are absolutely contra-indicated.

P.S.—I have now under observation another example of scrofulous pharyngitis in my clinical service at the Hôpital de la Charité. It is a case of a young man of about 30, who presents a perforation of the roof of the mouth, and at the same time very curious deformities of the soft palate. This patient exhibits all the features of a scrofulous constitution: largeness of the alæ nasi, thickness of the lips, cicatrices along each side of the neck. Moreover, he confesses to having had a syphilitic affection, which he contracted, according to his account, several years ago; yet he affords us very few positive details touching the general phenomena which succeeded his chancre; and if he has really had syphilis we must recognize in this subject a coincidence of scrofula and syphilis.

When he first presented himself for examination, the breath was exceedingly offensive. On opening his mouth, I noted an almost general softening of the gums, and a large perforation of the roof of the mouth. Through this perforation the two nostrils could be perceived in a great extent. The edges of the perforation were bleeding and fungous, and the surrounding mucous membrane of a reddish livid hue. The nasal fossæ seemed obstructed with greenish crusts. The partition of the fossæ was destroyed in the corresponding situation. Beyond the perforation the soft palate was quite unimpaired, but appeared swollen and as if infiltrated. On the left, the posterior arch had contracted abnormal adherences with the left side of the uvula in all its extent, and was seen to spread from that situation like a large veil and adhere to the posterior surface of the pharynx, at an angle of about 45°. The right posterior arch, reduced to the size of a narrow ribbon, already presents the brilliant appearance of a cicatrix, and adheres, at an angle more nearly approaching a right angle, to the posterior pharyngeal surface. Between the points of insertion of these two arches, the surface presents in all its extent irregular ulcerations, with a yellowish lardaceous fundus, covered with very adhesive muco-purulent secretion. Small granulations of a deep reddish hue appear here and there between the ulcerated points. There exists no lesion of the larynx.

FURTHER OBSERVATIONS ON THE THERAPEUTICS OF THE PRESENT DAY.

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AN article appeared in the *Practitioner* for November, by Dr. Kennedy, of Dublin, entitled "Observations on the Therapeutics of the Present Day." The remarks which I am about to make are not intended as a criticism of that paper; my object is to develop somewhat further the bearings of some of the propositions advanced by him. Dr. Kennedy finds fault with "those gentlemen who have described therapeutics as being in a state of complete chaos;" and especially with those who think that "it will be necessary to begin the study of it again *de novo*."

I do not wish to undervalue the advances which have been made in therapeutics in recent years, and therefore leave those who maintain that therapeutics is in a state of complete chaos to defend themselves against Dr. Kennedy's strictures. But when it is maintained that the study of therapeutics must be begun *de novo*, this may be taken in either of two senses. It may be meant that we must reject all the labours of our predecessors: both the facts which they have accumulated, the order to which they have reduced those facts, and the interpretation they have placed upon them; or it may merely be meant that, while consulting the works of our predecessors for facts, and for any other information they can afford us, we must interpret those facts anew, and reduce them to an arrangement thoroughly independent of anything which has hitherto been done.

It is in the first sense that Dr. Kennedy appears to understand the term *de novo*, and it is manifest that such a position is indefensible; but in the second, and I think, more usual acceptation,

the term expresses a truth which is felt by the best members in our profession. When it is said that a house must be rebuilt from its foundations, it is not meant that the materials of the old house, nor even the conception of the architect who planned that house must be rejected in building the new; no more does the term *de novo*, when applied to the study of therapeutics, mean that the labours of our predecessors must be entirely rejected. My own opinion is, that the greatest service which could be rendered to therapeutics at present is, if a powerful intellect would re-arrange all our therapeutical facts in such new combinations as would enable it to escape from all preconceptions, and to subject all the hypotheses which have descended to us from the past to a rigid and unbiassed scrutiny. Without such a re-arrangement of the facts, and a rearing of a new edifice from the first principles of our knowledge, it is almost impossible to escape from unwarrantable assumptions by old ideas and postulates creeping into our premises unnoticed.

The next point I shall notice is, that Dr. Kennedy warns us against expecting too much from therapeutics. He thinks that those who speak of placing therapeutics upon a scientific basis would lead the reader to suppose that it can be made an exact science. But anyone who could be misled by this language must, in the first place, overlook the distinction between a concrete and an abstract science; and, in the second place, he must overlook the distinction between a theoretical and a practical science; or, in the more usual phraseology, that between a science and an art. No one need expect to make therapeutics more exact than the least exact of the sciences upon which it is founded; and any one who has studied the method of physiology need not expect that it can ever be rendered so exact as mathematics—a science which deals solely with the laws of quantity abstracted from all concrete instances.

I am not aware that the expectation to make therapeutics a science as exact as mathematics has at any time exercised an injurious influence. Even during the predominance of the iatro-mathematical school it was not attempted to place medicine upon the same basis as mathematics; but the endeavour was made to explain vital phenomena by mathematical formulæ, and this application of mathematics to the elucidation of concrete instances

is perfectly legitimate, were it only possible. The iatro-mathematical school, therefore, are chargeable with undertaking a task which was impossible at the time, is impossible at present, and will probably be impossible at any future time, except on a small scale; but they are not chargeable with undertaking a task which was fundamentally erroneous in conception. The idea, however, of discovering a law which would render therapeutics as exact a science as astronomy, has been entertained, and is probably entertained by some at the present day. But to point out the misconceptions which gave origin to such an idea, would lead me to a subject so wide that it cannot be discussed within the limits of the present article. These misconceptions, however, are much more fundamental than that of the writers who advocate the necessity of placing therapeutics upon a scientific basis.

It has already been remarked that anone who thinks that therapeutics can be reduced to an exact science, must overlook the distinction between a science and an art. A science is an investigation into the course of nature; but an art proposes to itself an end which it is desirable to obtain. The end of medicine is the attainment of health, and a knowledge of many sciences is necessary for the skilful application of means to that end. The following extract from Mr. Froude's "Address to the Students of St. Andrew's" may be adapted in all essential particulars to the practice of medicine:—"The peasant's business is to make the earth grow food. The elementary rules of his art are the simplest, and the rude practice of it the easiest; yet between the worst agriculture and the best lies agricultural chemistry, the application of machinery, the laws of the economy of force, and the most curious problems of physiology. Each step of knowledge gained in these things can be immediately applied and realized. Each point of the science which the labourer masters will make him not only a wiser man, but a better workman; and will either lift him, if he is ambitious, to a higher position, or make him more intelligent and more valuable if he remains where he is."[1] There can be no doubt that there are many useful practitioners who have only the most elementary knowledge of the organism they undertake to treat, and if possible a still more elementary knowledge of the agents

[1] Inaugural Address to the Students of St. Andrew's, March 19th, 1869.

employed by them in that treatment; whose minds never ascend above a rude empirical diagnosis and the application of a few practical maxims, and whose only inferences are from particular cases to the one in hand; but between the treatment of such and the highest medical practice there lies, not only the whole of biological science in its widest extent, including objective psychology, but the whole of the physical, chemical, and even mathematical sciences. So far, therefore, as practical medicine is concerned, what we want is, not the discovery and enunciation of laws of nature, but the enunciation of principles which will enable us to converge a wide scientific knowledge for the achievement of a certain end. We want to fill up the gap which separates the highest generalities of our knowledge, and the minutiæ of our practice—some one to do for therapeutics what Sir James Mackintosh says Burke did for politics. "The subject," says he, "which, with few exceptions, employed this mighty understanding, was politics. To speak more exactly, it was the middle region, between the details of business and the generalities of speculation."[1] These remarks will, I think, render it apparent that a much wider knowledge than that "of human physiology is essential to give anything of a scientific status to our therapeutics."

If it were always borne in mind that therapeutics is an art, we should not hear so much of therapeutic experiments. When our object is primarily, not the ascertainment of truth, but the cure or relief of disease, an experiment in any true sense of the term is impossible. It is well if the result obtained is sufficient to serve as a verification of our argumentation from the theorems of science. Dr. Kennedy speaks of the necessity of giving medicines in the simplest form, in order to arrive at definite and constant conclusions. His remarks upon this point are worthy of attention in practice. But others have gone further than this. Homœopathic practitioners maintain that under no circumstances ought more than one medicine to be given at a time. This rule, however, is practically evaded by the method called the "alternation of medicines." One medicine is given one hour, and another the next, and so on alternately. I do not wish to

[1] "Memoirs of the Right Hon. Sir James Mackintosh," by his Son, J. Mackintosh, Esq. 2nd edit. vol. i. p. 70, 1836.

undervalue the importance of observing simplicity in prescribing drugs; since, if a very complex compound is administered, clinical observation will not even serve to verify our argumentation from the conclusions of science. But the statement that simplicity in prescribing ought to be observed, and the one that under no circumstances ought more than one medicine to be given at a time, are very different. It is impossible by reference to practical results to determine whether the administration of only one medicine at a time, or a judicious combination, is the better treatment; or, rather, it is impossible by this means to decide against the combination. Suppose, for instance, that the homœopathic treatment of cholera by arsenic is proved to give better results than that by calomel and opium, this would merely prove that the arsenic treatment was preferable to this one particular combination: and, even if it were proved that homœopathic treatment in all instances leads to better results than what they are pleased to call allopathic, this would merely show that the principles of the latter were not sufficiently advanced to enable them to select the proper agents. Nothing could be determined by this against the employment of a combination of remedies. Another advance in the sciences upon which medicine is founded, and in the knowledge of the principles by which the conclusions of those sciences are applied to the achievement of the end of medicine, might enable us to select combinations which would give much better results than the single remedy. It is manifest, therefore, that this question cannot be determined by reference to practical results, and any light which can be thrown upon the subject must be obtained from theoretical argumentation. And, indeed, the arguments advanced by homœopathists in defence of their position are primarily of this nature. The main argument is that the administration of more than one drug at a time will vitiate our conclusions. Now, if therapeutics were a science instead of an art, this argument would be unassailable. But the fact that therapeutics is an art renders it nugatory. What would be thought of a statesman who would advise Mr. Gladstone to delay the passage of any other measure for the amelioration of the condition of the Irish people, lest our conclusion with regard to the results of the Irish Church Bill should be vitiated? That Bill would be of no use except as the first of

a series of measures which must be properly related to each other, so as to form a complete system of policy; and the principles which determined the nature and form of the Church Bill are equally applicable to the measures which have already been, and to those which must hereafter be adopted. And it is no less true in medicine than in politics, that our principles ought to assist us, not only in selecting a single remedy for a particular ailment, but in sketching out a complete system of treatment for each case of disease, whether of a nation or of an individual. In planning, therefore, the treatment of a diseased individual, it may be advantageous to combine two or more drugs, provided that care be taken that all are concurring to the same end, and that the action of the one drug does not interfere injuriously with that of the other. Indeed, all the productions of art are attained by a combination of means, and he is the most successful practitioner who, with a knowledge of the principles of his art, and of the sciences upon which it is founded, has the faculty of attending to the most minute and multiplied details.

I shall now notice very briefly Dr. Kennedy's remarks with regard to scepticism. It appears to me that the mental characteristics of those, who, when "some one medicine fails them, they become sceptical of all," are more allied to credulousness than to scepticism.

There is a healthy scepticism which is the first mental requirement necessary to anyone who would study the laws of the universe. The philosophies of Descartes and of Bacon were founded upon this scepticism, and instead of being stigmatised, it ought to be encouraged. What the scientific doubter ought to remember is, that for the practical emergencies of life we must act upon evidence much inferior to anything which meets us in the least certain of the sciences. Those who are exclusively mathematicians, and who have not studied the less exact sciences, are particularly apt to become unpractical. And the reason of this is, that the conclusions of their science are deduced from such stringent evidence, that they are apt to undervalue conclusions which must rest upon probable evidence. This unpractical state of mind is frequently found associated with high scientific attainments, and the only counteractive to it is to combine practice at a sufficiently early age with the study of the sciences. This

unpractical condition of mind will not depart at the bidding of a magician, and it is necessary to place the mind under a suitable process of education before it can be overcome. Anyone, however, who is conscious of this unpractical scepticism in his own mind, may be helped in overcoming it by remembering the rule of Descartes, who was the prince of doubters, that on all occasions which called for action he would act promptly and to the best of his judgment, and abide without repining by the result. This is all that the limits of this paper permit me to say upon this point. I shall, therefore, proceed to notice a little more at length another of the propositions advanced by Dr. Kennedy.

The proposition is, in Dr. Kennedy's own words, "that the proper position the physician holds, in reference to the administration of drugs, is that he treats, and with the assistance of nature cures, disease by their means." It depends very much upon what Dr. Kennedy means us to understand by the term "nature," whether I, for one, will agree with him or not. Does that term stand here—as it frequently does in both ancient and modern writings—for the essential properties of a thing, upon which its other properties depend? Dr. Johnson uses the word in this sense in his address on Medicine at the meeting of the British Medical Association at Plymouth. At any rate, I can attach no other meaning to the term when he speaks of "the *nature* of morbid poisons," and of "germs, dust, and fungi, their nature and origin."[1] But if this is the meaning which Dr. Kennedy attaches to the term, his proposition might well have been expressed in more modern phraseology, and in language less liable to misconception. And such a modern expression has recently been given to a similar idea by Dr. Johnson. In his recent controversy with Dr. T. Clifford Allbutt, he says "that a salt either escapes or acts as a poison, or does both, by virtue of the mutual action and reaction of the physical and chemical properties of the salt and the more recondite properties of the living tissues and fluids."[2] This statement of the mode in which Dr. Johnson conceives a salt to escape or to act as a poison, was called forth by a special controversy; but I do not

[1] See *Lancet*, August 12th, 1871, p. 221.
[2] Ibid., November 4th, 1871, p. 655.

suppose that he would object to its being generalized so as to embrace the action of drugs in curing disease. Dr. Kennedy's proposition, therefore, when interpreted in this manner, simply means that when a drug cures it does so by the mutual action and reaction of its properties and the properties of the living body. I do not know, nor have I any means of ascertaining at present, whether Dr. Kennedy would accept this interpretation —probably not. At any rate, although he dissents somewhat from the teaching of the late Sir John Forbes, he gives no indication that he uses the term "nature" in a different sense. Amidst so much uncertainty, therefore, my best plan is to show that "nature" has been employed in so many different senses that it is necessary to observe the greatest caution in its use, lest both reader and writer should be betrayed into fallacious modes of thought. A very competent authority says, "The term 'nature' is used sometimes in a wider, sometimes in a narrower extension. When employed in its most extensive meaning, it embraces the two worlds of mind and matter. When employed in its more restricted signification, it is a synonym for the latter only, and is then used in contradistinction to the former. In the Greek philosophy, the word φύσις was general in its meaning; and the great branch of philosophy styled '*physical* or *physiological*' included under it not only the sciences of matter, but also those of mind. With us the term 'nature' is more vaguely extensive than the terms *physics, physical, physiology, physiological,* or even than the adjective *natural;* whereas in the philosophy of Germany, *Natur* and its correlatives, whether of Greek or Latin derivation, are, in general, expressive of the world of matter in contrast to the world of intelligence."[1] But in order to comprehend fully the meaning of "nature" in the Greek philosophy, it is necessary to know the Greek cosmology. I cannot do more in this place than allude to the subject in the briefest possible manner, with the view of tracing some of the senses in which the term "nature" has been employed in the history of medicine.

The ancient philosophers held that in the universe there were two original principles—the one was matter, and the other an immaterial principle. The former was the substratum from

[1] "Reid's Collected Writings, with Hamilton's Notes and Dissertations." 6th edit. vol. i. p. 216, footnote.

which everything was made; it was formless, passive, and *received* the forms of things: the latter was the universal energy, the efficient, the moving power which *impressed* the forms of things upon matter. Nature was sometimes employed in a general sense to include the passive matter, and the immaterial principle by which matter was impressed; but by Hippocrates and his immediate predecessors it was applied to the latter only; that is, it was used to designate the spiritual essence which was supposed to be diffused through the universe. When employed in the latter sense, it corresponds in some respects to the modern conception of "force." But notwithstanding a certain degree of similarity, there are many points of difference, a few of which it is necessary to point out.

It is now generally agreed by all the modern schools of philosophy that, at least so far as the objective world is concerned, we cannot separate the ideas of matter and of force. Mr. Martineau and Mr. Wallace, who regard all force as will-force, admit this as freely as Mr. Mill, who looks upon force as a product of the mind, and without any objective validity. But in the Greek philosophy the passive matter and the spiritual essence were supposed to be two separate entities, having two distinct functions to perform. The modern idea is that all motion, whether of mass or of molecule, is expressible in terms of force; but the immaterial essence of the ancients was only supposed to be the cause of certain kinds of motion. The sciences had not then separated clearly from the arts, and the conceptions of the latter found their way into the former. The immaterial essence was the principle of order in the universe; and by order was meant, not the modern conception of physical law, but a certain ideal perfection; and "nature" was represented as striving to maintain this perfection, and as moving things to their places when there was a preternatural disturbance. But what could cause this preternatural disturbance? Nature could not, as it was the principle of order; hence it was necessary to postulate the existence of a rival principle which impeded the action of the former. Empedocles called the principle of order *love*, and of disorder *strife*, and Plato gets over the difficulty by representing matter as labouring under an inherent incapacity.

In the history of medicine, however, "nature" soon acquired

a more technical sense: Hippocrates employed it to indicate the power which caused the organic functions of plants and animals, inclusive of sense and voluntary motion; and on the whole the term as so applied corresponded pretty nearly to the individual emanation of the *anima mundi* of Plato, and is not unlike the law of "unconscious intelligence" which Professor Laycock supposes to pervade the organic kingdom. Galen afterwards restricted the meaning of "nature" still further. He attributed the organic functions of plants and animals to the operation of nature, and the phenomena of sense and voluntary motion to the sentient or animal soul, so that the "natural faculties" of Galen corresponds to the "vegetative soul" of Aristotle. But in medicine "nature" has been used in another, but closely allied sense, to that in which it is represented as the power which produces organic functions. It has already been seen that nature was not only regarded as the dynamical principle of the universe, but also as the principle of order; hence Hippocrates, and more especially his immediate successors, represent it as endeavouring and frequently succeeding in curing disease independently of any interference by art. In this manner the term came to be used in opposition to art, and it is probable that it is in this sense that Dr. Kennedy uses the term. Nature, then, was represented by the ancient medical writers as a power, simple, unanalysed, and unanalysable, manifesting itself by producing the organic functions (functions being used sometimes in a wider, sometimes in a narrower sense), and by restoring these functions to health when deranged. Now all this was perfectly consistent with the cosmological conceptions of the ancients; and if anyone thinks that these cosmological conceptions are superior to those of modern times, he is perfectly consistent in employing "nature" in the senses already indicated. But if anyone does employ it in those senses, he ought to defend himself upon the broadest possible grounds. He ought to show that the philosophy which originated with the Socratic movement was superior to that of Descartes, that the cosmological conceptions of Aristotle were in advance of those of Bacon, and that the ancient physics were more in accordance with fact than those of Newton.

But it may be asked if anyone in the present day really does employ "nature" in the ancient meanings of the word? Now it

is very difficult to convict a writer of using this word in a particular sense, unless he openly avows and specially defines the sense in which he employs it. For instance, it appears to me the most natural construction to place upon Dr. Kennedy's words, that there is within the body an undecomposable power called "nature," which assists us in curing disease; but if he does not like to own this meaning, he may say, as already stated, that he merely means by "nature" the essential properties of a thing. One who does not wish to own to his having employed "nature" in its ancient meaning, has another convenient way of escape, by passing from the abstract to the concrete mode of expression: accuse him of having used the word to indicate an immaterial power which is the cause of the bodily functions, and he may say that he merely employs this term in an abstract form expressive of the *natural* functions themselves. Tell him that he uses "nature" to indicate a power which restores certain diseases to health, and he may inform youth at he merely uses it as an abstract statement of a fact, which cannot be denied, that the majority of diseases tend *naturally* to health. Dr. George Johnson, in his recent controversy with Dr. Allbutt, says, "I use the term 'nature' in the sense in which I had supposed it to be universally understood, to express the functions of the living body."[1] When Dr. Johnson says that he believes the above sense to be the one in which "nature" is universally understood, he must surely restrict himself to very recent times, since it can be abundantly proved that the term was used in a very different sense in the history of medicine; and if Dr. Johnson uses the term in this sense, he ought in his address at Plymouth to have indicated to his audience the difference between his use of the term, and the sense in which the late Sir J. Forbes employed it. This statement from Dr. Johnson of the sense in which he and others employ the term "nature" would be of very great importance, did he not within the limits of the same sentence openly refute it. "And I speak of nature and art," continues Dr. Johnson, "as contrasted terms, in the cure of disease: the result is that Dr. Allbutt and his friend are shocked to find that 'nature is now-a-days taking the place of the Almighty;' whereas I had thought that nature—that is, the self-mending power of the living

[1] See *Lancet*, November 18th, 1871, p. 732.

machine—is largely taking the place of the physician." In the latter part of this sentence Dr. Johnson openly avows that he employs "nature" as the *self-mending power* of the body; and if this is true, it flatly contradicts the first part of the sentence, in which he says that he uses it only to express the functions of the living body, for certainly the functions of the body are not a self-mending power. In whatever manner, therefore, Dr. Johnson's deliverances are interpreted, a contradiction is involved, and we prefer to interpret them in the manner which involves the least contradiction. I therefore think that, notwithstanding Dr. Johnson's own assertion to the contrary, he does not habitually employ the term "nature" to express the functions of the living body, but that he regards it as a power which produces those functions, and which tends to restore them to health when they are deranged. I do not intend to refute this use of the term, but if Dr. Johnson still continues to employ it in this sense, let him be thoroughly consistent, and adopt the metaphysics and the physics of the ancients.

There are several other points in Dr. Kennedy's paper which I should like to discuss did the limits of the paper permit, but I shall only allude to two of them, and I shall simply mention these lest my silence might be construed into an assent to their truth. Dr. Kennedy thinks that "the physiological dose of each drug is the proper one to use," and that "our doses being smaller than those used by our predecessors, our results cannot but be unsatisfactory." The first of these propositions is in my opinion thoroughly impracticable, and the second thoroughly fallacious.

WESTMINSTER HOSPITAL PAPERS.

I.

ON THE TREATMENT OF HEPATIC DROPSY.

BY W. R. BASHAM, M.D.,

Physician to the Hospital.

THERE is no form of dropsy more amenable to treatment, at its first occurrence or in its early stage, than hepatic dropsy, arising from engorgement of the liver, or even hypertrophy of that organ caused by the abuse of alcoholic drinks. It is a disease of frequent occurrence in our wards, and consequently repeated opportunities are afforded of measuring the influence of remedies and laying down some general principles of treatment. The efficacy of treatment is proportioned to the stage or period in which it is commenced, as well as to the absence of any complication in heart or lungs.

If the accumulation of fluid in the belly be of some months' duration; if the anasarca of the lower extremities be on the increase; if the abdominal surface be tense and shining; if the marking of the wall by the inosculation of the superficial branches of the external epigastric veins with the external mammary veins be well marked; if the urine be scanty, loaded with lithates stained deeply with purpurine; and lastly, if the urine be, however slightly, albuminous, remedies are of no avail: the disease (cirrhosis) has reached its last stage, and no arrest in its progress can be expected. If, on the other hand, the dropsical state be recent; if the distension of the abdominal walls be moderate; if the anasarca of the lower extremities be trifling; if there be no evidence of enlargement of the superficial abdominal veins, and the urine be free from albumen—then

the prospect of relief by appropriate remedies is encouraging, and often leads to an apparent cure of the engorged or hypertrophic state of the liver. The term *apparent* is designedly employed, because the record of many cases, in which the disappearance of the ascites, the restoration of the digestive functions, and the nutritive processes generally, sanctioned the result as one of present cure; yet probably from the return of the patient to the vicious habits which originated the disease, in a year or more the ascites returned, followed by evidence of a contracting or cirrhosed liver, and consequently a state of disorganisation of structure hopelessly beyond all prospect of mitigation or relief.

The ordinary history of these cases of hepatic dropsy consists of an antecedent period of gastric disturbance, characterised chiefly by defective appetite, occasional retching, and some degree of epigastric tenderness on pressure. The most common symptom in reference to the stomach is morning retching or even vomiting; on first rising a hacking, irritable kind of cough, without any expectoration, is followed by an effort of retching, with probably a copious expulsion from the stomach of a white frothy mucus: this represents a form of what may be appropriately termed gastric catarrh. In ninety-nine cases out of a hundred, the remedy to which the patient resorts, while it momentarily relieves the irritable stomach, perpetuates the original mischief, augments the vascular congestion of the gastric glands and mucous membrane, and leads still further to disorder in the hepatic circulation. The remedy thus all but universally selected by the patient or his friends is a stimulant in some form or other—rum and milk, gin and milk, gin and bitters, and a host of similar concoctions, familiar to the host and hostess of every public-house, and known to them to be in popular demand in the early hours of the day. This state of gastric catarrh, temporarily relieved by these drams, is but too often accompanied by an almost total inappetency and even distaste for solid food. Patients will often declare they have not eaten two ounces of solid food at any single meal for months. Drink is their only food. Flatulent distension of the bowels, sluggish action, and scanty, high-coloured urine, continuing for some time, will mask the commencement of the

presence of fluid in the belly; sometimes the patient complains of a heavy dragging weight in the right hypochondrium, particularly if he reclines on the left side. Most of these symptoms pass by unregarded; they are not urgent enough to cause a cessation from work—and probably it is not till an increasing size in the abdominal girth, marked by the necessity of letting out the waistband, or stays, according to sex, that the patient seeks medical advice, and the real state of things becomes at once revealed. It is at this juncture, this early stage, that the greatest benefit is derived from active treatment. The use of all stimulants must at once be discontinued. The stomach should have absolute rest for a day or more: a blister to the epigastrium, kept open for a few days, tends materially to lessen the irritability of this viscus. The medicinal agents of more service at this stage are brisk mercurial purgatives. That valuable, though now too much neglected, preparation of calomel should be selected. Five or even ten grains, with half a scruple of the bicarbonate of soda and a little powdered ginger, should be given over night, about twice a week, and a warm aloetic purgative in the following morning. If the bowels require still stronger purgatives, the calomel may be given in combination with jalap, or colocynth, to be followed by some saline mixture in the morning. Half a grain of podophyllin with colocynth is also most efficacious as a purgative. Two or three days' treatment on this plan will bring the digestive function to some degree of activity, and the patient will often say he feels an appetite and desire for food such as he has not known for a very long time. Great caution is needed in these cases to regulate the diet. In hospital practice this is not difficult, but in private life many circumstances combine to render strict attention to dietetic rule a troublesome matter. The all but innate belief amongst this class of patients in the harmlessness of the stimulants they take, and of their efficiency as remedies for almost every ailment, renders abstinence from them almost impossible, unless the patient be under the wholesome restraint of hospital treatment.

The symptoms of graver import, such as hæmatemesis, icteritic stain of skin, &c., will be discussed on another occasion.

(*To be continued.*)

II.

THREE CASES ILLUSTRATING THE GREAT ADVANTAGES OF SKIN TRANSPLANTATION, WITH SOME REMARKS ON THE METHOD OF PERFORMING THE OPERATION.

BY G. E. LEGGE PEARSE, F.R.C.S.

Surgeon to the Hospital.

CASE I.—M. M——, brewer's drayman, age fifty-four, was admitted September 22nd, 1871, suffering from a large, unhealthy-looking ulcer situated over the front of the tibia, some three and a half inches in diameter. The patient was ordered to remain in bed, and to use a lotion of carbolic acid. The wound soon took on a healthy action, but exhibited little or no tendency to cicatrise, this being probably due to the fact that chronic inflammation of the tibia had existed some years previously consequent on a fracture of the leg, and the skin having become adherent to the bone in nearly its whole length. Several stimulating applications were tried without effect to induce cicatrisation; it was therefore decided to transplant some skin to the surface of the ulcer. Accordingly on October 20th, the patient having been in the hospital one month without any decrease in the size of the wound, four small pieces of skin taken from the front of the abdomen were placed upon the sore. The wound at once took on a healing action, which continued rapidly, all four points of skin answering, and in one month the whole of this large surface had completely closed in.

CASE II.—A. C——, female, married, age twenty-two, admitted October 10th, having a large tertiary syphilitic ulcer on the front of the leg, measuring about six inches long by three and a half inches broad. On admission, the sore was unhealthy-looking and deeply excavated, with a tendency to slough; but by rest, good diet, and the application of lotio nigra, the wound soon took on a healthy appearance.

October 31*st*.—Having waited three weeks, and there being no appearance of cicatrisation, four pieces of skin, taken from the front of the abdomen, were grafted on the ulcer. The healing process at once set in, each of the four pieces of skin forming a centre of cicatrisation, and at this date (December 6th) the patient is well and able to leave the hospital.

CASE III.—Thomas S——, a little boy, aged seven years, admitted August 10th, suffering from compound fracture of the femur. The accident was caused by the child being run over, and so severe was the contusion of the soft parts that the whole of the skin of the back of the thigh, from the fold of the nates to the bend of the knee, sloughed. At the end of two months there was hardly any attempt at union of the fracture, and the large surface at the back of the thigh indicated very little tendency to heal. As the limb had been kept on a Liston splint in good position, the ends of the bones at rest and without any overlapping, the cause of the non-union of the fracture was no doubt the great drain on the system from the large amount of discharge from such an extensive ulcerated surface. It was determined therefore to pay particular attention to the healing of the ulcer, so that by diminishing the discharge the patient's health might improve, and so favour union of the fracture. On October 24th six points of skin were taken from the abdomen and placed on the granulating surface. On examination a week after, four out of the six were found to have united, the ulcer was cicatrising rapidly, and on November 30th this large surface had entirely healed; the splint was then removed from the limb, and the condition of the femur examined, when the bone was found to be firmly united.

From the foregoing cases we can learn that in all instances of extensive ulceration when the wound is in a healthy condition, but without tendency to cicatrise, that healing may be brought about by the operation of skin grafting originated by M. Reverdin.

The special advantage of the operation in the cases I have laid before you I will now proceed to point out.

In Case No. 1, that of the man with the large ulcer over the

tibia, and the skin adherent to the bone, not only was cicatrisation started by the operation, but after the healing process was complete I found that at the part where the fresh skin was grafted the cicatrix was not nearly so firmly adherent to the bone as the parts beyond, and therefore not as likely to become ulcerated again from any slight contusion, to which a part so exposed as the front of the tibia is always liable.

In Case No. 2, the patient, a young female in an exceedingly bad state of health, from wretched diet, suckling an infant, now three months old, and severe constitutional syphilis, one would not have been surprised had the operation been useless, knowing how very rarely plastic operations answer in syphilitic patients; but even in this case not only did all four points of skin live, but cicatrisation commenced immediately, and in about five weeks over eighteen square inches of raw surface had healed over.

Case No. 3, that of the little boy with compound fracture of the femur, is still more interesting. The large wound, on which from its position he was obliged continually to be lying, resisted all attempts to cause it to heal: as soon as a healthy condition was established at one end of the wound, an indolent, weak, or sloughy appearance would be seen at some other part, the discharge from this large surface being very great; but as soon as skin was transplanted to it cicatrisation began, and in less than six weeks we find that not only have the twenty or more square inches of raw surface healed over, but that in consequence of the rapid diminution and cessation of the drain on the constitution caused by the discharge, that the fracture, which before showed no sign of union, has now become perfectly firm. And now let me say a few words on the manner of performing the operation, and the subsequent treatment of the case which I have found to answer best.

It was recommended originally by M. Reverdin and Mr. Pollock that the pieces of skin transplanted should be exceedingly minute; the size of a millet-seed or a little larger.

For my part I have generally noticed that when the particles of skin are so very small that, especially in cases where there is copious secretion of pus, they are liable to be washed away, that adhesion is not so likely to take place, and that the operation,

though performed with great care, is often of no avail. I have therefore of late found it better to take small elliptical pieces of skin about half an inch in length by one-third in breadth, by pinching it up with dissecting forceps, and snipping it off with the scissors: the piece not consisting of the whole thickness of the skin, so that there may be no bleeding from the part whence it is removed. The little white tender spots from which the skin has been taken I usually touch over with collodion, and in a few days they are quite well.

The portions of skin are laid on the healthy granulating surface, care being taken that no blood or pus intervenes; a piece of gold-beater's skin is then laid over the wound to exclude the air, and retain the fragments in position, as recommended by Mr. Pollock. I find great advantage in covering this with a piece of lint spread with simple ointment, as the greasy application materially assists in the removal of the dressings, preventing them from adhering to the surface of the wound, and so tearing off the pieces of new skin, an unfortunate result which I have more than once observed.

III.

CASE ILLUSTRATING DIFFICULT DIAGNOSIS OF PREGNANCY. LABOUR COMPLICATED BY EXTREME RIGIDITY OF THE OS UTERI.

BY JOHN B. POTTER, M.D.,

Assistant Obstetric Physician to the Hospital.

THE following case possesses so many features of interest, that I make no apology for publishing it. F. L——, æt. 38, married, applied among my out-patients, on March 31st, 1871, complaining of feelings of general malaise, heaviness, and weight about the lower part of the abdomen, and a bearing-down sensation of the womb. She informed me that she had been married eighteen years, and had never been pregnant;—that the catamenia, which had always been regular, though very scanty, had ceased for

nearly four months; that during her whole menstrual life the discharge had never amounted to more than a few spots, and had invariably been accompanied by pain both before and during the flow. She also stated that the left side of the abdomen swelled much, more at one time than another, and that this began some years ago; that her breasts also swelled, and she felt pricking sensations in them. Coughs, and feels sick at times, not specially in the morning.

Mammary signs.—Development good, some areola and a few glands, sufficient to correspond with early pregnancy.

Vaginal examination reveals cervix hard and conical, os not to be felt, except as a depression: when seen through the speculum it appears like a minute pin-hole. There is a share of resistance to the left, and rather in front of cervix. Uterus is freely moveable, and does not feel increased in weight to the finger.

Abdominal examination shows well-marked condition of the recti muscles, which contract so strongly as to divide the abdomen into two distinct parts: that on the right is perfectly resonant, and contains nothing abnormal; the left gives a distinct feeling of resistance to the finger. A defined line of tumour may be made out in the hypogastric region, where resonance is not so good nearly as on the opposite side, and on deep pressure a feeling of impulse is communicated to the hand. She was ordered some carminative mixture. On the 12th of May, she states that she passed a good deal of matter, with blood and slime of the bowels yesterday, and they had been rather confined previously. All the other signs were in the same condition as before.

I admitted her into the hospital on May 16th, in order to have the benefit of the opinion of Dr. Frederic Bird. She remained for the purpose of being carefully watched until June 9th, and when she left Dr. Bird expressed his opinion that she was pregnant. During her stay in the hospital the tumour increased somewhat in size, and became more symmetrical in shape, the cervix remained conical but softened a little, but the pin-hole condition of the os still remained. A little secretion also could be squeezed out of the breasts. I should add that the fœtal heart, though listened for carefully, could not be heard. On the 16th of June she reports that the substance feels hard, but there is a

sense of a very little movement in it: this sensation she had felt first on the 30th of May, when she felt suddenly faint.

The measurements that were taken were very little to be relied on, as I find that on the 20th of May she measured 35 inches; the 28th May, 36 inches; the 9th June, 36 inches; the 16th, 35 inches; and on the 30th, 34 inches. On July 25th she reports that the last four days she has felt quite a jump in the abdomen, which moved the bed-clothes. The abdomen is now very much enlarged, 37 inches, and the form of the fœtus can be traced; the fœtal heart can also be heard distinctly. Vaginal examination shows the cervix much softer, but the conical form remains the same, and the condition of the os uteri is unaltered. To-day, examining in the upright position, *ballottement* is well made out. She was told that the probable date of her confinement would be the end of October, but she is still very sceptical on the subject, and still inclined to doubt the existence of pregnancy. The last time that I saw her previous to her confinement was the end of September; the signs of vaginal examination were then the same as on July 25th, the only notable change being in the increased softness of the cervix, but the conical form and the ill-developed, nay almost imperfect, condition of the os uteri was still present.

On Sunday, October 29th, the resident obstetric assistant was called at 5 P.M. to see this patient, and he found that labour had commenced, but the pains were very slight. On examination the head was found presenting, but this was made out through the uterine wall; the os was found lying far back and high up, about the size of a sixpence. At 9 P.M. the uterine wall was much thinned, but the os was not felt; the pains still continued very slight. On Monday she continued much in the same state, with the exception that the head had descended lower. She was not then at all exhausted, the pulse firm and steady. At 2 P.M. I saw her and found the head very low down, covered with the uterine wall, which was extremely thin, the sutures of the fœtal head being easily felt through it. The os was about the size of a shilling, of the wet-parchment thin feel, and yielding not at all to the finger; it was tolerably low down, and looking to the sacrum. I ordered tartar emetic to be given in doses of a quarter of a grain, and repeated three times at intervals of half-an-hour.

This was administered at 9 P.M. and caused no marked effect. At 11.30 P.M. the pains became stronger, dilating the os slowly until 4 P.M., when it was about the size of half-a-crown, and its edges a little thickened. At this hour the frequency and strength of the pains diminished, ceasing altogether at 11.30 A.M. October 31. I saw her at about 5 o'clock that day, when I found the condition much as described, the vagina was hot, the pulse 96—108, but free of pain, and the patient, although much fatigued, fairly comfortable. I decided to again resort to the antimony, the strength of the former solution having been doubtful, and that the patient should be carefully watched. Two doses of half-grain were given at 7.30 P.M., the second causing vomiting. At 9 P.M. the pains recommenced, and the os slowly dilated until the labour terminated in the birth of a female child, living, at 6.30 A.M. November 1.—The placenta was retained until 9 A.M., when it was removed. She was then very weak, but there was no hæmorrhage. She progressed from this time very fairly; the lochia, however, being extremely scanty, scarcely lasting more than one or two days.

On November 6th there were some symptoms of a febrile nature, the patient having slept very little since confinement, and having been very indifferently nursed and fed. The tongue was dry and brown, the skin hot, pulse 104, and occasional delirium. On the following day all these symptoms had abated, and on the 9th had quite disappeared.

Remarks.—This case almost speaks for itself: the difficulty of the diagnosis of early pregnancy; the improbability that with such an os and cervix, and after the lapse of so many years, pregnancy should take place at all, and the rarity of the uterine non-development continuing to so late a period of pregnancy; on the other hand, the mammary development being so extremely well marked.

As to the treatment of the rigid os during labour, this patient, who is sallow, thin, and cachectic-looking, could not have borne the severe treatment of our forefathers, bleeding to syncope, &c. Of course, had the rigidity remained unmoved much longer, operative interference would have been necessary, and lesion of the cervix the only suitable means in this case of relieving the patient. But by carefully watching the case throughout, and

giving nature a fair chance even for so long a period as sixty-five hours, delivery was accomplished without exposing the patient to the great risks which probably would have seriously implicated her chances of life.

For the notes of the progress of labour, I am indebted to Mr. Fosbroke, resident obstetric assistant.

Reviews.

The Quarterly German Magazine for November 1871. London: Williams and Norgate.

THIS is the first number of a new periodical, which is intended to present to the English reader a series of essays selected from the "Sammlung gemeinverständlicher wissenschaftlicher Vorträge," and edited by Professor Rud. Virchow and Dr. v. Holtzendorff. We learn from the preface that the contents will alternately present selections from the departments of science, history, and art. The present number contains the three following essays or lectures:—1. On the Cranial Affinities of Man and the Ape, by R. Virchow. 2. Sight and the Visual Organ, by A. v. Graefe. 3. The Circulation of the Waters on the Surface of the Earth, by H. W. Dove. In all three the subjects are treated popularly; yet, as is always the case with the lighter works of great masters, with many observations and side-glances that are highly suggestive to those who are even well instructed. Virchow sketches rapidly the morphological relations between the crania of the monkey and the man, pointing out the much closer resemblance that obtains between the two in infancy than in adult age; and indeed that "with every month and year of life the skull of even the most anthropoidal ape grows more dissimilar to the human cranium." Hence it is obvious that by progressive development an ape can never become a man; and if we are descended from the anthropoid apes at all, it must have been from some species very different from any of those now existing. Virchow proceeds to discuss the bearing of cases of arrested, imperfect, or abnormal development on this subject; and concludes with an emphatic approval of the principles of the Darwinian theory. Von Graefe's paper is just such a simple and clear exposition of the structure of the eye as might be expected from him, but contains no points requiring notice here.

The last essay, by H. W. Dove, is perhaps the most interesting of the three. He gives a concise explanation of the nature of the tides, and shows how in America the flood comes from the east, but in Africa and Europe from the west, and then discusses

the origin of springs. From one statement, which is probably new to most of our readers, it would appear that parts at least of the Great Desert of Sahara might be made inhabitable. He says, "When in 1854, after the battle of Meggarin, General Desvaux was encamped in the oasis, Sidi Rasched, he remarked that on one side of it the palm-trees looked poor and shabby, whilst they were sound and flourishing on the other. On inquiring into the cause of this peculiar appearance, he was informed that there was a scarcity of water, the chief well having fallen in; and as they possessed no means of digging a new one, they were awaiting the day when their palms would cease to bear fruit, and they should all die of hunger. It was Allah's will. The General, on his own responsibility, concluded to send to France for a boring apparatus; an engineer from the house of Degousée in Paris was summoned. He found the matter practicable, and the following winter, after a division of Spahis had worked for four days, a spring bubbled forth out of the deserted shaft, bringing 4,300 libris of water a minute. The inhabitants rushed in crowds to the blessed spring, bathing their children in it. Now came petitions from all the other oases for similar favours, and since then some fifty wells have been brought into use without visibly diminishing the volume of water in those already dug."

The type and paper of the new magazine are good, but we desire to call the attention of the editors or publishers to the desirability of having the text of the translation revised, the typographical errors being very numerous. In six pages of Von Graefe's lecture, taken at random, we have noted no less than eight such errors. On the whole, we think the German magazine likely to prove a valuable addition to our periodical literature, and we are glad to see there is a likelihood of publication of many similar lectures and addresses to those before us; no less than 137 by distinguished authors having been already published in the "Sammlung," and many more being promised.

The Medical Declaration respecting Alcohol.

DURING the past fortnight a paper has been circulated among the medical men of London, which I find it necessary to criticise; because I am reluctantly obliged to withhold my name from a list of signatures already including the majority of the most eminent names among metropolitan physicians. I cannot allow it to be supposed that my non-signature is the result of chance, or of carelessness on my part: on the contrary, it is the expression of very decided and definite objections to the publication of any such document as the one in question, excellent though the motive of that publication undoubtedly is. The following is the declaration:—

"As it is believed that the inconsiderate prescription of large quantities of alcoholic liquids by medical men for their patients has given rise, in many instances, to the formation of intemperate habits, the undersigned, while unable to abandon the use of alcohol in the treatment of certain cases of disease, are yet of opinion that no medical practitioner should prescribe it without a sense of grave responsibility. They believe that alcohol, in whatever form, should be prescribed with as much care as any powerful drug, and that the directions for its use should be so framed as not to be interpreted as a sanction for excess, or necessarily for the continuance of its use when the occasion is past.

"They are also of opinion that many people immensely exaggerate the value of alcohol as an article of diet; and since no class of men see so much of its ill effects, and possess such power to restrain its abuse, as members of their own profession, they hold that every medical practitioner is bound to exert his utmost influence to inculcate habits of great moderation in the use of alcoholic liquids.

"Being also firmly convinced that the great amount of drinking of alcoholic liquors among the working classes of this country is one of the greatest evils of the day, destroying—more than anything else—the health, happiness, and welfare of those classes, and neutralising, to a large extent, the great industrial prosperity which Providence has placed within the reach of this nation, the undersigned would gladly support any wise legislation which would tend to restrict, within proper limits, the use of alcoholic beverages, and gradually introduce habits of temperance."

I shall not dwell on certain obvious literary defects of the above paper, which make it not very worthy to be the manifesto of a liberal profession. Moreover, I fully sympathise with the desire expressed in the concluding paragraph, for reasonable legislation with a view to diminish the needless temptations to drink that are offered to the poor; and had the declaration confined itself to this topic, I could have found no fault with it; but with the first and second paragraphs I entirely disagree. It is not that they make any statement which, abstractedly taken, is altogether incorrect; but I entertain no doubt whatever that their general sense, as it will be read by the public, conveys a false impression, and one which is calculated to do more harm than good.

It is, in the first place, both a false and a mischievous idea that any considerable percentage of the drinking habits of any class of English society springs from the improper prescription of alcohol by medical men. That such improper prescriptions *may*, and occasionally do, cause drunken habits, I have not

merely admitted, but elaborately proved on more than one occasion.[1] But I protest now, as I have protested before, that in nine-tenths of the cases in which doctors have been blamed as the occasion of the evil habit, the accusation has been the mere invention of a lying drunkard anxious for a scapegoat to bear a portion of his disgrace. But the first paragraph of the declaration will undoubtedly be read by the public as a distinct admission that the medical profession has had a relatively considerable share in the spread of intemperance. I believe such a statement to be ridiculously false; and I would further suggest that, were it true, the eminent physicians signing this document, among whom are included a large majority of the teachers who have educated the recent generations of medical practitioners, ought to cast dust upon their own heads for having reared their pupils in such scandalous and mischievous ignorance of their duties.

In regard to the second paragraph, I insist that it will convey to the public an entirely false impression as to the state of competent scientific opinion. It will undoubtedly be taken as a confirmation of the now obsolete doctrine of Lallemand, that alcohol is treated by the organism as a merely foreign stimulant, and is not decomposed therein. Now, I appeal fearlessly to Dr. Parkes (the only one of the signers of the declaration who has done recent experimental work regarding alcohol) to say whether his latest experiments have not strongly confirmed the refutation, by Schulinus, Dupré, and myself, of Lallemand's doctrines regarding elimination of unchanged alcohol. In a letter which Dr. Parkes was kind enough to send me some few months since he confessed, with that candour and high-mindedness which have ever distinguished him, that such was the case. I therefore believe that Dr. Parkes must have neglected to consider carefully the sense in which the declaration will inevitably be read by ignorant persons.

But finally—and this is really the most important point of all—I most distinctly object to the kind of dictation by which the signature of this paper has been obtained. The secretary of the Temperance League puts pressure on the Editor of the *British Medical Journal*, and the latter gentleman proceeds to put pressure (exceedingly difficult to resist) on a number of eminent professional men. To my own personal knowledge this declaration has been signed by numbers of gentlemen who have scarcely given a thought to the principles which it affirms, and who have confessed to me that their only reason for signing was the fear of seeming to oppose so good a work as the mitigation of intemperance. This is a mere terrorism, and ought to be

[1] *Vide* "Indiscriminate Stimulation in Chronic Disease," *Practitioner*, July 1869; "The Use and Abuse of Alcohol by Women," *Ibid.*, February 1871.

resisted. It is a repetition of the very useless and n chievous farce which was gone through some twelve years a when crowds of medical men, who in their own priv opinions and practice were wholly opposed to teetotalism, w induced to sign a paper advocating views the only logical in pretation of which was that alcohol was always and everywh an unmitigated poison. The climax of that most indecor exhibition was the discovery that several of the most emin signers had also certified warmly and publicly to the gr virtues of certain special wines and beers! I say that all t kind of insincere and skin-deep philanthropy is degrading to profession; and although I will co-operate with anyone to ge reasonable licensing bill through Parliament, I can have no p in a declaration which is in no sense the accurate and spontane expression of the medical opinion of this country.

Several important reviews are unavoidably postponed.—] PRACTITIONER.

Clinic of the Month.

Physical Restraint in Delirium.—Dr. T. J. Maclagan, referring to the tying down of delirious patients shown to be practised in the Hampstead Small-pox Hospital Inquiry, states that he has had large experience in the treatment of delirium, and especially of that form that accompanies typhus, and believes himself entitled to speak authoritatively on the subject. In all the severe forms of fever and small-pox, he remarks, there is more or less delirium, and he maintains that no matter how high it may be, or how much the patient may talk and rave, restraint is not to be thought of, unless he insists *on getting out of bed.* There are two classes of patients who try to do this. In both the patient is labouring under some delusion which compels him to rise: but in the one class the delusion is a reasonable one, and the patient can by tact and proper management be induced to give it up; in the other it is utterly unreasonable, and impels him to some act of madness which nothing but physical restraint can prevent. A right discrimination of these two forms of delirium is essential to the proper management of small-pox and fever patients; the want of such discrimination is the probable cause of the variety of opinion which seems to exist among medical men regarding the propriety of using physical restraint. The first class of patients, those whose delirium is rational, are easily managed, but they must be indulged in their delusions, however absurd and incongruous they may appear; contradiction and opposition only make them more urgent in their demands to get up, and do much harm by exciting and irritating, where only soothing and quieting measures should be adopted. Physical restraint in such cases is not to be thought of: it would simply madden the patient, and convert his case from an easily-managed and perhaps mild attack, into a severe and possibly fatal one. The excitement and irritation consequent on the restraint would enormously increase the nervous symptoms, and the struggle to free himself would exhaust the strength which should be husbanded by all possible means. With the second class of cases, reasoning is useless. The delusions (if their real nature is ever known) are so utterly unreasonable that it is impossible to humour them. Such patients, if not restrained, are sure to

injure and perhaps to kill themselves. There are three forms in which such restraint may be applied:—1. Manual restraint by attendants. 2. Restraint by means of a folded sheet. 3. Restraint by the strait-jacket. Manual restraint by attendants is the form which to the uninitiated seems the mildest and most easily applied. To hold a man down seems less harsh than to tie him down. It is, on the contrary, *the worst form* in which the necessary restrictive force can be applied. It not unfrequently resolves itself into a trial of strength between the patient and the attendant: the natural pugnacity of both is stimulated by the struggle (for this form of delirium is rare in women); the attendant may lose his temper and be unnecessarily severe; while the patient is kept in bed at the expense of a great increase of the nervous symptoms and a heavy drain on his physical strength. Restraint by a folded sheet is easily applied, calls for no increase in the number of attendants, and is decidedly the mildest way in which the movements of a violent patient can be restrained. It possesses, also, the great advantage over even the more intelligent manual restraint, that it can be so applied as to keep the patient in bed without altogether preventing movement of the limbs. In the milder cases in which restraint is called for, this is a matter of some importance; for it must ever be borne in mind that the object of restraint is, not to prevent all movement, but to prevent the patient getting out of bed. If the sheet is applied so as to prevent all movement, it does harm by stimulating the patient to get rid of what he feels to be an irksome and irritating control. A sheet or sheets may be so applied as to permit the patient to move, and even turn in bed, to pull his feet up and move his hands about, and yet be sufficiently well secured to prevent him from getting out of bed. The bodily wants of a patient so restrained should be very carefully and constantly attended to. Such a case requires many small attentions: a mouthful of water from time to time, an occasional piece of ice popped into the mouth, gentle sponging of the face and hands, and a few soothing words very often prevent the necessity for further restraint, and so quiet down the patient that the restrictive measures already adopted may soon be abandoned. The constant application of cold to the head is advisable if the patient seems to like it; if he objects to it, as is sometimes the case, it should not be insisted on. The nurse should be distinctly given to understand that a patient who is tied down requires almost constant attention in the manner which has been indicated; and the medical attendant should see him every two or three hours, in order that the restraint may be mitigated or abandoned as soon as this can be done with safety. In attending to such cases the nurse should be permitted, and even encouraged, to make use of the convalescents; one of them may often with perfect propriety be seated

by the side of such a patient, and instructed to give him a bit of ice every now and then. It is good for the convalescents to be so employed, as it relieves the tedium of their lives, and gives the nurse more time for those duties which cannot be delegated to others. Restraint by the strait-jacket is a delirium resort, and only becomes necessary when the patient is so violent that other means fail. In conclusion, Dr. Maclagan has no hesitation in saying that physical restraint is often absolutely necessary, to prevent a delirious patient from injuring himself and disturbing all the other patients in the ward, and that a folded sheet is by far the best means by which the necessary restraint can be applied. It is the kindest thing that can be done for the patient, the best for the other occupants of the ward, and the easiest for the attendants. (*Lancet*, Dec. 2, 1871.)

The Antiseptic Treatment of Wounds.—Dr. Newman gives the following account of this method of treating wounds, as he observed it to be practised during a recent visit to Mr. Lister's *clinique*. Taking the simple case of an ordinary abscess, in which immediate incision is needed, the antiseptic treatment must be carried out as follows:—1. Destroy any putrefactive material about the integument of the part by washing it thoroughly with a lotion of carbolic acid (one part of the acid to twenty of water). 2. A constant cloud of fine spray must be kept up by an assistant, and so managed that the hands of the operator and the part to be incised are always enveloped in the spray: one or more of Richardson's spray-producers may be needed for this purpose. The carbolic acid solution for the spray will be sufficiently strong if made of one part of the acid to one hundred of water. 3. The knife employed must first be dipped in the carbolized olive oil (one part of the acid to ten of olive oil). 4. The incision being made, the abscess-cavity may, as far as possible, be emptied by gentle pressure. If any vessel should have been divided and need a ligature, it should be tied with some prepared carbolized catgut, and both ends of the ligature be cut off short. 5. The wound may thus be dressed: a piece of "protective" oiled silk, coated with copal varnish, and then covered with a layer of dextrine, so as to retain a little of carbolic acid lotion (one part to forty of water) on its surface,—cut not much larger than wound,—should be dipped in the lotion just named and then applied; on this a pad of the antiseptic gauze must be placed, large enough to overlap thoroughly the wound, and not less than eight layers in thickness. Between the seventh and eighth layers, or those most distant from the patient's surface, must be placed a single layer of macintosh cloth, so as to prevent direct soaking of any discharge through the gauze covering, and so ensure that any moisture that may be

poured out shall pass through many antiseptic layers, and over some wide space, before it can possibly be exposed to the impure influences of a septic atmosphere. 6. For the retention of this covering in place, a strip of the above-named (cut the width of, and roll up as an ordinary bandage) may be employed. The slightly adhesive character given to the muslin will make the requisite turns fit very easily, and be less liable to displacement than the common calico roller. 7. If it be necessary to wait for some little matter—to replenish the bottle of the spray-producer with the lotion, to change the assistant, &c.—the wound should be covered with a piece of rag, dipped in lotion, containing one part of acid in forty of water. This, for convenience, is known as "a guard," and subsequent dressings—first every day, then at longer intervals—must always be managed in the same way. The spray will need to be unremittingly kept up; the fingers to be soaked in the lotion or wetted with the spray; all adhering discharge carefully washed away; and the protective outside pad and bandage applied as before. 8. To small operations, removal of tumours, &c., the above process is thoroughly applicable. If the wound made be deep or tortuous, a tent of lint—a narrow strip—dipped in carbolized olive oil (one part of the acid to ten of oil) must be introduced before the sutures are inserted. At the end of twelve or twenty-four hours this tent may be removed; it will have absorbed the serum oozing from the deeper part of the wound, and so have prevented distension of the deeper parts, and possible formation of pus. 9. In larger operations—*e.g.*, amputations—a larger volume of spray must be secured from two or more of the usual spray-producers, or from the apparatus employed by Mr. Lister. Sponges should, before using, be dipped in carbolic acid lotion (one to a hundred): when soiled, they must be washed, first in clean water, then in a lotion of one to forty; and then, just before using, in a lotion of one to a hundred. 10. The following cautions may not be out of place:—(*a*) The lotions for spray-producers need very careful filtration before being used. It is exceedingly easy to choke the fine apertures through which the spray is delivered. (*b*) Hold the muslin padding closely down over the wound until the layers of bandages shall have retained it closely in place, and leave no channel by which septifacient air may reach the wound unprotected by several layers of gauze-bandage. If dressings be loose or displaced, air will soon reach the surface of the wound, and in twelve hours suppuration will be established. (*c*) Re-dress so soon as any trace of stain shall have shown itself at the outer edge of the gauze covering. (*d*) Sinuses and wounds opening into mucous canals are ill fitted for thorough antiseptic treatment. The advantages may be briefly summed up:—1. The dressing is clean, almost inodorous, and singularly painless.

2. The formation of pus as a consequence of the injury, surgical or accidental, is, with due care, prevented. 3. Erysipelas and pyæmia, if not absolutely extinguished, are very rarely seen. 4. The wounds are free from irritation; no swelling of incised integument and no local redness are to be noticed. 5. There is no constitutional disturbance (traumatic fever) after even several operations. The dressings are infrequent, and in themselves free from irritating material. 6. The wounds heal rapidly. (*British Medical Journal*, Dec. 9, 1871.)

Treatment of Polypus of the External Auditory Meatus.—Dr. Dalby, speaking of these polypi, says they are at times very vascular, and when they are so there is a good deal of bleeding after their removal. When they do not attain any considerable size, a very common appearance for them to present is a red, fleshy, globular mass projecting through a perforation in the membrane. In such a case they grow from the cavity of the tympanum, and from their situation, by preventing the escape of discharge, sometimes thus become the indirect cause of death in those fatal cases where the lateral sinus and brain become involved. The reasons for which their removal generally is demanded are, the continuous offensive discharge from the ear and deafness, both of which symptoms are their invariable accompaniments. The most usual position from which aural polypi arise is some part of the walls or roof of the tympanum; they also spring from the external meatus and from the tympanic membrane itself. After one polypus has been removed from the cavity of the tympanum, it not unfrequently happens that one or even two more are brought into view. In looking down a speculum where the membrane has been completely destroyed, it is not always easy to decide, at first sight, whether the red mass at the bottom of the meatus is a small polypus or simply granulations on the lining membrane of the tympanum. This, however, is ascertained by examination with a probe, when a polypus will be found to move under the touch. Indeed, this should always be practised so as to determine, as nearly as possible, the point from which the growth arises. With regard to removing the polypus: if it be very large, the best instrument is a Wilde's snare, armed with fine gimp. If of moderate size or small, simple rectangular forceps, meeting at the points by two rings, are the most convenient. The lever ring forceps of Toynbee is not often necessary, and at the best will only grasp a very small growth. While using any kind, or in applying caustics, the meatus should be illuminated with diffused daylight through the largest speculum that it will hold, the reflector being worn on the forehead and fastened with a band round the head: both hands will thus be

quite free. The most effective caustic Dr. Dalby finds to be chloro-acetic acid, applied on a very small camel's-hair brush. In using this, care should be taken not to touch the meatus, and provided this is not done, very little pain is felt; but if this should happen, it is relieved at once by syringing with warm water. Potassa fusa and chloride of zinc are not so manageable, and the former is liable to spread to other parts than those which it is necessary should be touched. Nitrate of silver is not sufficiently powerful, but it is a very useful caustic to apply to granulations on the membrane, or on the surface of the cavity of the tympanum. The liquor plumbi is useful for the same purpose, and may be applied with a camel's-hair brush or in the form of a piece of cotton wool soaked in it and worn for a few hours every day pressed on to the part. It is well, before any of these applications are made, to dry the part carefully with cotton wool. Dr. Dalby also describes a method of cleansing the middle ear of secretion, for which we must refer to the *Lancet*, Dec. 9th.

Phagedæna of the Penis treated by Opium.—A case under the care of Mr. Pollock, of St. George's Hospital, shows the advantage of this plan of treatment well. The patient was admitted with a phagedænic ulceration of the glans penis, probably of syphilitic origin. He was ordered fifteen drops of tincture of opium every four hours; but as at the end of two days the patient had not made satisfactory progress, the dose was increased to twenty drops, and was combined with half a drachm of compound spirit of ammonia. At the same time a weak solution of carbolic acid was applied locally on lint. A speedy improvement was now observed, and cicatrisation was almost complete in a fortnight. (*Lancet*, Dec. 16, 1871.)

Extracts from British and Foreign Journals.

The Rational Treatment of the Acute Exanthemata, and especially Measles and Scarlet Fever.—The following is a *résumé* of an article by Dr. Ottmar Hofmann, of Marksteft, near Würzburg, contained in the Second Part of the third volume of Hallier's "Zeitschrift für Parasitenkunde." The first and most important requirement, he says, "of a rational treatment of any disease consists in the removal of its causes. Unfortunately, in the case of many diseases this is impracticable, either from our not being acquainted with the nature of the cause, or that the cause is due to certain conditions of the life of the patient from which it is impossible to withdraw him. In such cases we must rest contented with an expectant line of treatment, or treat symptoms as they arise. The advance of science, however, is continually enabling us, by improving our knowledge of the causes of disease, to treat it in a truly rational manner. Thus the carefully made and important researches of Professor Hallier, into the nature of the contagions of infectious diseases, so long obscure, have clearly shown that they are of a vegetable nature, and indeed are true fungi, which, by their introduction into the body and subsequent multiplication, generate the diseases in question." Dr. Hofmann forbears to enter into a consideration of the prophylaxis of measles and scarlet fever, considering this to be a matter of medical policy, and to consist essentially in the purification of dwelling-houses and the removal of all excrementitious matters which form the fruitful soil for the generation of these fungi. In all cases he supposes the disease to be present, and the practitioner has to deal with the parasitic organisms after they have gained entrance into the body. Now, in such case it is necessary either to render these parasites harmless by the administration of certain remedies which are capable of killing them, or we must seek to eliminate them from the body as soon as possible. The treatment of these affections by means of the most varied remedies has demonstrated satisfactorily enough that we know of no remedies capable of neutralizing the poison of measles or of scarlet fever, that is to say of killing the cells of the fungi; and even if, as the beautiful researches of Binz appear to show, we possess in quinine a substance capable of exerting a favourable

influence on the acute exanthemata similar to that which it has been demonstrated to have in typhus, still it can scarcely be administered in doses sufficiently large, especially in children, to destroy the life of the fungi, as Binz himself admits, whilst the somnolence of the patients in the severer cases, which most resemble typhus, renders the introduction of the medicine quite impossible. On these grounds it seems desirable to adopt the other plan, and to promote the discharge of the fungi from the system as rapidly as possible. With this object in view, the plan of the late Dr. J. Steinbacher, of lowering the temperature of the body —that, namely, of rolling the patient up in sheets wrung out of cold water, and surrounded by a woollen cover or dry sheet—in which condition he is allowed to remain for some time. The first effect of this proceeding is to powerfully excite the whole nervous system; heat is withdrawn from the body in proportion as the temperature of the skin and that of the wet cloth approximate, and this again leads to a steady flow of the internal temperature towards the skin. If the body remain enveloped for a still longer period, so that the temperatures of the body and of the cloth have become equalized, a more or less abundant excretion of sweat occurs as a result of the cutaneous hyperæmia. On this increased excretion of sweat Steinbacher lays special stress, contending that by its means the special poison of the disease is eliminated from the body. In order to determine whether this supposition be correct, M. Hofmann treated a child of four years of age, suffering from a severe attack of measles, in the hydropathic fashion, but placed upon its chest a fine piece of linen, and after the child had lain for two hours in the wet cloth and had perspired freely, the piece of linen was removed and the sweat expressed from it received into small tubules. These were transmitted to M. Hallier at Jena, with a request that he would examine them and report on the presence of micrococcus. The reply was that the micrococcus was abundant in the fluid; and Professor Hallier at once instituted experiments, the results of which are not yet published, to determine whether this micrococcus will propagate the disease of measles. If this be found to be the fact, it will tend to show that the hydropathic plan of treatment is well adapted for the rapid removal from the body of the parasitic organisms. M. Hofmann states that he has adopted this method of treatment with good results in many severe cases of measles and scarlet fever, even when the patients were in the first instance comatose, and has observed not only that the febrile symptoms are rapidly subdued, but that the convalescence of the patients is much quicker than under other plans of treatment. The particular mode in which M. Hofmann applies the wet cloths is perhaps worthy of being here inserted. In those slighter cases,

he says, in which the temperature of the body measured *in ano* does not exceed 40° C. and the brain is clear, he envelopes the patient only from the axilla to the hips in the wet cloth, which is thus applied. The patient is made to sit up, and a folded towel is spread across the bed behind the back; an equally broad and long soft linen cloth, folded six or eight times and wrung out of cold water, is placed on this, and is again covered by a fine piece of cambric or muslin. The patient is then told to lie back, and the cloth is folded as close round the patient as possible, and secured by a bandage. The dry cambric next the skin is only to prevent the disagreeable impression of cold, and children make no complaint. The patient is retained in the wraps for one or two hours, according to the temperature, and they are then re-applied, freshly dipped in cold water; and this is continued till the temperature of the body falls to 38° or 38·5° C., which usually happens in from two to four days. He then directs the patient to use a warm bath daily to promote desquamation, and considers him well in about eight days. In more severe cases, where the temperature of the body rises above 40° C. and comatose symptoms are present, he envelopes the patient in from two to four wet cloths, and covers these with wool. In the early period they are only allowed to remain on for fifteen or thirty minutes, and are then renewed after the lapse of one or two hours. Subsequently, in order to promote perspiration, they are allowed to remain longer in the cloths, that is to say for one or two hours, and they are applied less frequently, as from two to three times daily. As often as the patient is removed from his envelopes, in order to maintain the cooling effect the whole body is sponged freely with cold water, or, if the comatose symptoms are well marked, he is placed in a bath of lukewarm water, and cold water poured over him till slight shivering is induced. He is then quickly removed to bed, and as soon as the temperature has again risen the whole procedure is repeated. As the febrile symptoms diminish the method of partial investment above described is adopted. A good deal in respect to the temperature of the water in which the cloths are dipped, the length of time and the frequency with which they are applied, must necessarily depend upon the age and strength of the patient, the degree of the fever, and the discrimination of the medical attendant; whilst judicious medicamentation (though but little of this is required in slight and uncomplicated attacks of measles and scarlet fever) is in some cases a very necessary adjunct to the hydropathic plan of treatment. (*Zeitschrift für Parasitenkunde*, Band iii., Heft 2.)

Indications for the Employment of the Catheter in Old People.—M. Guyon, in one of his clinical conferences at the

Hôpital Necker, lately remarked that retention of the urine is very common in old men, depending generally on affections of the bladder, or of the neck of the bladder, or of the prostate. Many cases of supposed vesical paralysis are in reality due to prostatic disease. Retention of urine in old people displays itself by symptoms that are eminently variable. Sometimes these symptoms are strongly marked: the patients require to micturate frequently, and in doing so experience pain and burning heat which lasts for a long time; there may even be constitutional and febrile symptoms. In other instances, again, the symptoms are by no means prominent, especially in those cases where the bladder is but little contractile; the retention is then only indicated by percussion, palpation, and catheterism, the latter alone in many cases being reliable evidence of its presence. But this indication that catheterism should be adopted as an exploratory means is somewhat delicate, for the operation is not always inoffensive, and the patient suffering but little subsequent troubles may be attributed by the patient or by his friends to the injudicious interference of the surgeon. If, however, the symptoms be well marked, then there is no room for hesitation, and M. Guyon even goes so far as to say that the catheter should be passed in the case of every old man who evacuates the contents of his bladder imperfectly. He thinks that it is not necessary that it should enter the organ on the first occasion, since, if only introduced as far as the neck, it habituates the tissues to the contact of instruments, and indicates, in part at least, the seat of the disease. Stoppage of the flow of water is always a serious symptom in old people, and the best advice that can be given to them is to be sounded either with a simple sound or with a catheter, and that frequently. Indeed, if relief be not speedily afforded to such patients, dangerous symptoms soon make their appearance in the form of rigors, purulent urine, and violent reaction.

Purely medical treatment is of no service in such cases, and he gives an instance in point. In 1869, in the month of September, M. Guyon had in his wards a man aged 48, who, after having been treated by ordinary remedies and by rest, left the hospital, but returned in January 1870. He was now suffering from orchitis and distinct enlargement of the prostate; he passed water frequently; the urine was thick, but was voided in sufficient quantities to lead to the belief that the bladder was thoroughly emptied. On the 1st February there was some fever present, and on the catheter being introduced about four ounces of urine were drawn off, and on a second occasion about six ounces. He was sounded four times, and was then told to sound himself. No other treatment was adopted. On the 7th the urine was clear yellow, and on the 15th he was able to

remain five hours without urinating. Catheterism practised in his case twice a day caused no return of the epididymitis. In another case, occurring in a dyspeptic subject, all the symptoms of cystitis were present. For a long time M. Guyon hesitated to sound him, and for two months he was treated medicinally without effect. At length he was catheterised, and the urine drawn off. The symptoms immediately diminished in intensity, and from this moment the urine, which had up to that time been troubled and imperfectly discharged, became limpid and even entirely evacuated. A third patient passed blood, and was obliged to remain in the recumbent position. After careful exploration M. Guyon recognised the existence of retention of urine, and passed a catheter. From this time all the symptoms of stone of which the patient complained disappeared. Thus not only stoppage of the flow of water occasions grave accidents, but it simulates other diseases; it causes alterations of the walls of the bladder, and provokes cystitis. When the bladder is greatly distended, however, it is imprudent to evacuate it completely. The frequency with which catheterism should be repeated is an important question. No absolute rule can be laid down, but it may be performed every five hours; but commonly the instrument should only be passed when there is intense desire to urinate. If, however, he experience but little or no inconvenience, it should be passed at regular intervals. As a rule, the permanent retention of the catheter in the bladder is to be avoided, except perhaps in cases when the desire to pass water is very intense and frequent, or when the introduction of a catheter is very difficult. M. Guyon cites a case where it was worn for two years. It should in general be fixed in position till the bladder is habituated to catheterism. As adjuvants to the above treatment, injections may be employed, which may be hot, cold, or medicamented as occasion may require. (*Lucas-Championnière's Journal de Médecine*, tome xlii., cahier 2.)

DEPARTMENT OF ANALYSIS AND INVENTIONS.

ANALYSES OF VARIOUS SAMPLES OF POTASSIUM IODIDE.—All the samples contained traces only of chloride of sodium, two of them (Nos. IV. and V.) small traces of iodate, and one only (No. V.) a small amount of carbonate. No other impurities were found in any of the samples.

It is satisfactory to find that, notwithstanding the enormous increase in the price of this drug, all the samples analysed are of remarkable purity.

PARTICULARS OF SAMPLES ANALYSED.

No. I. From Thos. Hodgkinson, King, and Co., Tenter Street, Moorgate Street. White, very large opaque crystals, dry.

No. II. From H. Cox, 44, Strutton Ground, Westminster. White, large opaque crystals, slightly moist.

No. III. From J. E. Burt, 76, York Street, Westminster. White, large opaque crystals, slightly moist.

No. IV. From Keating and Co., 79, St. Paul's Churchyard. White, very large opaque crystals, dry. Contains a minute trace of iodate.

No. V. From H. Cooper and Co., 20, Moor Street, Soho. White, small opaque crystals, slightly moist. Contains 1·24 per cent. of carbonate of potassium.

No. VI. From Chas. Jas. Hewlett and Co., Creechurch Lane. White, large opaque crystals, dry. Contains traces of iodate.

No.	Moisture.	Iodine.	Chlorine.	Iodate.
I.	1·16	74·15	0·40	None
II.	1·69	73·75	0·35	None
III.	1·90	74·10	0·25	None
IV.	0·66	76·88	0·25	Minute trace
V.	2·20	72·76	0·12	None
VI.	0·83	74·15	0·80	Trace

Pure dry potassium iodide contains 76·50 per cent. of iodide

CORRESPONDENCE.

THE COLD-WATER TREATMENT IN EXALTED TEMPERATURE.—Mr. R. P. Oglesby, of Leeds, sends us the following important note:—

"The record of two or three cases in which the cold-water treatment proved of remarkable benefit may be interesting to your readers.

"A strong, healthy-looking girl, aged seven years, was attacked with double pneumonia, and had been seriously ill for forty-eight hours previous to my first visit. She had passed two sleepless nights, refused to take food, and was slightly delirious. Her skin was harsh and dry, and the thermometer stood at 101°.

"I advised that the child should at first be placed in a warm bath registering 98° or 99° of heat, and remain in it for at least five minutes. Afterwards cold water should be gradually added, and only discontinued when the child complained of its severity. The following day, fourteen hours after my first visit, I was much surprised to find my patient sitting up in bed, having a temperature of only 98°·3. Lung sounds almost normal. On the fourth day, finding my patient dressed and in the sitting-room playing with her toys, I took my leave, the lungs not presenting a trace of disease.

"Three children, members of one family, simultaneously suffered from pneumonia. Each child was seriously ill. The temperature was very high, ranging from 103° in the eldest child, æt. six years, to 104°·3 in the two youngest, aged respectively four and two years. The gradual application of cold had the most beneficial result, although in the most severe case the cold bath had to be repeated the second time.

"I may, in conclusion, refer to what I believe to be the best and safest method of employing this remedy—viz. the gradual, rather than the immediate, application of cold."—[Ziemssen's method, in fact. ED. PRACT.]

DR. F. PORTER SMITH, of Shepton Mallet, sends us the following respecting nitrite of amyl:—

"It may be remarked, with reference to the effect of nitrite of amyl in causing flushing of the face, that Chinese 'samshu' (*i.e.* thrice distilled), or native corn-brandy, produces upon the people a remarkable reddening of the eyes and whole head, with a very evanescent excitement.

"This is due to the presence of fusel-oil (amyl-alcohol), and has exercised no small influence upon the drinking habits of the Chinese.

"The suffusion of the head and face immediately proclaims the fact of having drunk wine.

"The smell of the spirit, depending upon propylic and butyric as well as amylic compounds, acts as another tell-tale.

"Very strong and cheap spirit is easily obtainable in China, and may be used in the preparation of tinctures, due allowance being made for the presence of the amyl-compound, which the Chinese distillers never remove by rectification.

"It acts like the salutary stink of gas, in giving timely warning of its near neighbourhood.

"Why remove fusel-oil from British brandy?"

NOTE ON THE EMPLOYMENT OF BICHLORIDE OF MERCURY AND IODIDE OF POTASSIUM IN THE TREATMENT OF CONGENITAL SYPHILIS.—Dr. D. Campbell Black, of Glasgow, sends the following:—

"In June 1870, I attended Mrs. H——, who was delivered at full time of a still-born child, exhibiting unmistakeable signs of congenital syphilis. There was an offensive discharge from the vagina, in addition to the decomposed state of the child, and the placenta partook of a like condition. On two occasions prior to this Mrs. H—— miscarried: the first time in the fourth or fifth month of pregnancy, and the second time in the seventh. Subsequent to the occasion of my first attendance (June 1870), I put patient under the influence of bichloride of mercury, in combination with large doses of iodide of potassium, and advised the use of vaginal injections containing permanganate of potash. The treatment was persevered in for about three months. The gums were slightly touched on one occasion, notwithstanding which the medicine was, however, continued in diminished doses. Some time ago Mrs. H—— called upon me, apprising me of her expected confinement, in October last; and I confess to having looked forward with anything but pleasant anticipations to the performance of my duty. To-day, later than Mrs. H—— expected, I was sent for; found the os dilated to about the size of a penny, and a head presenting. The presenting part seemed firm, and I argued to myself, consequently, a more satisfactory termination of the case than on the previous occasion. A few hours afterwards, labour became more severe; the progress of the head was slow, and thus my agreeable anticipations seemed confirmed. After a moderately severe labour, patient was delivered of a large male child, as healthy in every respect as any I ever saw. The placenta was healthy, and all other attendant circumstances natural. Immediately on the birth of the child patient eagerly inquired whether it was alive, having been three times disappointed.

"Here is another case in which mercury and iodine of potas-

sium did good. It takes a long time to construct a medical fact; and I have no sympathy with men whose sole delight and service to science it seems to be to fly in the face of the experience of trustworthy predecessors. Of this there is assuredly too much. Let us first ascertain facts, and then it will become our duty to deduce facts therefrom. It is not by building up and tearing down every alternate year that human misery can be alleviated, or the administration of drugs be elevated to the dignity of a science properly so called."

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[1] Any of the foreign works may be procured on application to Messrs. Dul of Soho Square, W.C.; or Williams & Norgate, of Henrietta Street, Cov Garden, W.C.

THE PRACTITIONER.

FEBRUARY, 1872.

Original Communications.

ON THE USE OF THE LACTO-PHOSPHATE OF LIME AS AN ANALEPTIC MEDICAMENT IN ADYNAMIC FEVERS AND IN CONVALESCENCE.

BY DR. R. BLACKE,

Laureate of the Medical School of Paris, &c. &c.

In a great number of acute diseases, especially in typhoid fever, typhus, and certain forms of pneumonia, we often notice a condition of considerable adynamia which takes its origin either in the peculiar character of the malady or in the constitution of the patient, and is constantly attended by a marked rise of temperature. This latter phenomenon may be rationally explained by an unceasing and general process of denutrition of the tissues. And, indeed, it is well known that all molecular changes in the form or composition of the constituent parts of the organism are attended with a disengagement of heat, and that these physiological manifestations are under the dependence of the ganglionic nervous system.

Every substance whose action tends to induce a sedation of this nervous system may therefore, by suspending or diminishing combustion, lower the temperature and oppose the progress of spoliation and of weakening of the organism. It is chiefly

through a sedative action on the ganglionic nervous system that we see medicaments, apparently so diverse, like alcohol, coffee, coca, and even arsenic, produce beneficial results,—act, so to say, the part of anti-deperditors, and respond to that clear and precise indication, adynamia. Such is, I think, the reason of the undeniable success of alcohol in certain forms of acute affections.

But even where the acute condition of the disease no longer exists, there subsists during the period of convalescence a general atony proportional to the gravity and duration of the febrile state which had brought on a period of arrest in the phenomena of nutrition of the tissues: several months may then pass on before health is re-established, if, indeed, it is ever entirely recovered; and we all know how essential it often is to institute a prudent and rational treatment at the termination of an acute disease, in order to prevent it from passing into the chronic state. With the view of warding off such results, I put the question whether it would not be more rational to resort in such cases to agents capable of arousing in the organism the entire energy of the nutritive function, and this substance, I believe, is to be found in the phosphate of lime, combined with lactic acid, and already known in France by the name of "lacto-phosphate of lime."

I was led to the employment of this salt by the physiological study of its action in all living organisms. For it is not only in animals, but also in an equal measure in vegetables, that its action is powerful,—since, a long time ago, botanists had stated that the ligneous skeleton of plants contained but insignificant proportions of the lime phosphate, whilst this substance was constantly found in the soft and nitrogenous parts of the plants. They had shown that the very existence of albuminoid substances was linked with the presence of the phosphate, and was everywhere found in direct ratio to the quantity of this agent, so that the more strongly nitrogenated vegetable food was precisely that which contained the more phosphates.

They had found out this substance in great abundance in the bud and growing leaves; they had seen it decrease in the fully developed organ, and take its way to the grain, where it became concentrated in view of the future development of the embryo. It is furthermore known that when a grain is deposited in a

situation deprived of phosphate, it produces a plant the development of which will continue only until the entire quantity of lime salt primarily contained in the grain shall have disappeared. Now, if we proceed to investigate the action of the phosphate in the mineral kingdom, we shall find identical phenomena.

I may recall the fact that in the pregnant woman we see at the end of a few days the phosphates disappear almost completely from the urine and excretions, whereas in the pelvis and often in the cranium are formed osteophyta, destined to disappear towards the latter months of pregnancy or at the beginning of lactation. It can scarcely be objected that these phosphates are uniquely absorbed for the formation of the skeleton. Boussingault, in a series of exact experiments, which cannot be too highly quoted, has shown that young animals take up much more phosphates than is required by the development of their bony tissues alone. Besides, Boussingault, Lehmann, Mayer, and other chemists and physiologists have shown in these cases also the strict correlation which links the presence of phosphates with that of nitrogenous substances, and the concentration of this salt in all organs which are going through a process of development, and they have enounced the opinion that phosphate of lime is indispensable to the organization of albuminoid substances into cellules.[1]

In order to obtain a correct knowledge of the action of the lime salt upon nutrition, I carefully submitted a pigeon to the test of taking food which was almost deprived of phosphate of lime. It soon lost all its liveliness, its appetite, a notable portion of its flesh and weight, and it excreted more phosphate than it absorbed. At the same time the muscular and fibrous tissues diminished as rapidly as the skeleton. The addition of the phosphate to its ordinary food soon brought back the normal condition which mineral inanition had taken away. It may be also well to mention a fact which, though well known, had not until now been elucidated: that the vital activity of animals and their temperature are proportionate to the quantity of lime

[1] "It has been recognised," says Lehmann, "that in the inferior animals, in the organism of which carbonate of lime is yet the most abundant mineral substance, the phosphate of lime accumulates in the situations where new cellules are undergoing a process of development."

phosphate which they contain; so that from the bird to man, and from man to the mollusk, the quantity of this salt follows a descending course.

The lime phosphate, as has been seen, plays an important part, after its absorption, and when it is carried away with the albuminoid substances through the circulatory torrent into the intimate recesses of our tissues. But that is not its only action. It is found in abundance in the stomach, forms an essential part of the gastric juice, and its action on the digestion of food is such that Blondlot considers the phosphate of lime to be the truly active element of the gastric secretion. And I may indeed even now state the fact that excitement of the appetite and facility of digestion constantly and quickly result from the ingestion of lacto-phosphate of lime.

Such is, I believe, the uniform action of this substance investigated in the animal and vegetable kingdom. It is scarcely needful here to refer to the use to which agriculturists have turned these notions in composing phosphated manures, and to the success which has justified their applications.

How is it that, in man, the same favourable results have not been seen to follow the employment of the phosphates even in such cases where they seemed to be most clearly called for—I mean rickets, osteomalacia, and fractures of bones? A great many physicians had been led, indeed, to employ the substance in these cases, but never with those marked and precise effects which had been expected.

The failure of these attempts is satisfactorily explained when we observe that the preparation invariably prescribed was the pulverulent phosphate of lime, of which lactic acid is the natural solvent. Now, this latter substance enters only for two thousandth parts in the composition of the gastric juice. It could therefore transform and render absorbable only a very limited part of the ingested salt; whilst the remainder, dissociated, reduced into an imperfect powder, passed with the food into the intestines, and there produced constipation, and consequently an arrest of all organic functions, the ordinary result of this pathological condition.

It was therefore necessary, in order to obtain the beneficial effects of the substance, to introduce with certainty into the

economy, large quantities of perfectly dissolved phosphate of lime.

It was in 1868 that Mr. Dusart and myself, after having investigated with care the phenomena of the digestion of phosphates in the stomach, were led to reproduce a substance representing exactly the composition of a portion of bone, rendered soluble and easily absorbable.

I have thought it necessary to enter into all the above details, because the facts which they involve, if they were not unknown, had at least passed without much engaging the notice of the profession, and because there had been no explanation of these physiological results. It seems to me that now it will be easy to understand how in convalescence, and in acute affections of an adynamic form, the functions of nutrition are restored; how after easy digestion the assimilation of food is secured, and fills up the gaps produced by disease, or arrests denutrition caused by grave fevers, substituting in its stead a contrary movement.

The lacto-phosphate of lime is at once an aliment and an article of food, and a medicament of the highest value. Its administration cannot, like that of alcohol, produce mischievous consequences, and it never depresses the nervous system charged with presiding over the transformations which take place in the nature or form of the elements of our tissues.

In order to illustrate the action of this preparation, I will now relate a few cases among the many instances which I have already had the opportunity of observing.

It will be, I think, better to commence with a series of simpler cases; viz. those of youths whose development had become suddenly stopped without its being possible to state any appreciable lesion, and who rapidly regained strength and returned to their normal condition through the action of the medicament upon the functions of nutrition.

CASE I.—Oscar N——, ten years of age; middle stature; has grown especially during this year (1869). Since two months the appetite has been less, and indeed is almost absent. The boy hides himself at the hours of meals, and will barely accept of a little bread. Intellectual work, which before had been active and easy, now hangs heavy upon the child, and he seems incapable of any sustained effort of attention. After walking

only a little, he complains of pains in the groins and in the joints of the legs. He is now pale and thin, and his eyes are black under the lids.

The most minute examination fails to detect any organic lesion, so that, taking the case to be one of arrest of growth, I content myself with prescribing the syrup of lacto-phosphate of lime (Dusart's), in doses of three tablespoonfuls a day, taken at meals.

At the end of one week's treatment the appetite and liveliness of the little patient had returned. A second phial of syrup was prescribed, at the end of which the normal condition had entirely returned, and has not been disturbed since.

There is no physician who is not frequently placed in presence of similar facts, having to attend children who, during the process of dentition or the various critical stages of development, and especially puberty, present an indifference to and sometimes a deep disgust for all kinds of food, atony of all the tissues, and often diarrhœa or constipation, resulting from this state of things. Now, we all know how difficult it is to treat such cases; for the condition of the alimentary canal no longer allows the patient to tolerate cod-liver oil, the nutritive and excitant qualities of which would otherwise render it so valuable; and, on the other hand, tonics of all kinds but too often prove of no effect.

The preparations of lacto-phosphate of lime, on the contrary, being extremely palatable, are readily accepted by all the young patients; and the case which I have just related may serve as a common example of the effects which are obtained through their means, and which are explained by their action both as chemical agents and as excitants of nutrition. Here success has fully justified the expectations which I had founded on the physiological effects of the substance.

At the other extremity of life we meet with conditions which in more than one point may be compared with those which I have just mentioned. In aged persons we not unfrequently meet with an almost complete suspension of all the organic functions and more especially those of digestion and of the various acts connected therewith. The wine of lacto-phosphate of lime administered at the end of meals, permits digestion, increases

the assimilation of alimentary substances, and awakens muscular energy, which is so often abolished at this time of life.

This sinking of all the organic functions contributes powerfully to give to all the acute affections of the aged (and of those who resemble the aged by a condition of general exhaustion) a peculiar character of adynamia. In these cases, a febrile state excited by any cause brings on fatally such a movement of denutrition that the patient often dies notwithstanding the most diligent and appropriate treatment. If, as I believe, it is by acting on the ganglionic nervous system, and by suspending to a certain extent a powerful process of disassimilation, that alcohol has rendered such great services and been so very successful in cases of pneumonia and other acute affections marked by an adynamic character, does it not seem more rational to leave untouched the functions of the nervous system and seek merely to fulfil an indication so tritely put down by one of England's great clinicians ?—feed the fever. And if this position be correct, I think I may safely assert that the lacto-phosphate of lime is, of all substances, the one best calculated to act as an aliment and as an excitant of the nutritive functions, in the numerous cases to which it applies.

The following case, which well exemplifies the uses of the remedy, has an importance upon which there is no need to lay any stress.

CASE II.—Madame H——, fifty-five years, tall, lean, showing much weakness, has already had three severe attacks of pneumonia.

On Thursday, July 27th, 1871, I was sent for by the patient, and I discovered the existence of a fourth pneumonia, which was invading the left lung in all its extent, and at the same time of pleuritic friction below the corresponding armpit.

These lesions were attended by diarrhœa, profuse perspiration, an expression of stupor on the countenance, and difficulty and slowness of speech. The pulse was at 112. On the 29th I prescribed four tablespoonfuls of Dusart's syrup, accompanied with a small dose of the white oxide of antimony, and some extract of cinchona. On the 30th, I noted a very slight amendment in the symptoms.

July 31st.—The patient's voice is strong and clear; the diar-

rhœa has stopped; the pulse is at 90; and some *râles de retour* begin to be heard. On the following days the appetite gradually returned, and the patient's condition grew better and better. On August 3rd, the pulse was still at 80, the appetite was sharp, and local condition very satisfactory, but there existed a certain drowsiness and a state of prostration for which there was nothing to account.

August 4th.—The pulse has risen from 80 to 120: prostration is considerable, and there exists on the right side of the face a parotitis of considerable development. Pneumonia, however, is in full convalescence.

I order five tablespoonfuls of Dusart's syrup mixed with the patient's drinks, and forty-five grains of extract of cinchona; two boiled eggs, beef-tea, and Bordeaux wine.

August 6th.—The pulse is now at 108. I apply two scarifications to the enlarged parotid.

August 7th.—Pulse at 90. The appetite has returned.

August 12th.—The existence of rigor and a condition of fluctuation in the tumour induce me to make an incision, which opens the way to a considerable quantity of matter. From this time the amendment became every day more marked; suppuration soon ceased, and the patient was quickly restored to a satisfactory state of health.

I need not dwell upon the peculiar gravity of the above case. We are well acquainted with the prognosis induced by the supervention of parotitis in the course of an adynamic pneumonia, and I doubt not that without the help of this energetic medicament it would have been impossible to keep up the patient's strength, and that she would have borne down under the pressure of such a serious complication.

Another class of diseases of an adynamic character, to which my attention could not fail to be drawn, was typhoid fever and typhus, which lay such a deep hold upon the whole organism and exert a general spoliation, well expressed by the diffluent condition of the blood. It was quite natural to attempt to combat such phenomena as these by means of an agent of whose action I had been able to judge so favourably. The results of the trial fully justified my most sanguine expectations, and it has been permitted me to see typhoid fever, even in its graver

forms, terminate, in the great majority of cases, in a satisfactory manner, and be attended by only a short convalescence.

CASE III.—In the month of June last I was called to attend a child of thirteen affected with typhoid fever of twenty-six days' standing, and already in the stage of convalescence, when a relapse was brought on by an excess in regimen. The symptoms presented by the lad were of a most alarming character: the fever was exceedingly high, delirium alternated with stupor, and there was considerable distension of the abdomen. A purgative (citric lemonade) had been brought up, and the medical attendant had considered it necessary to call in a consulting physician.

I ordered two grains of calomel, divided into ten doses, which caused the delirium to cease, and produced several motions; and, as a drink, Dusart's syrup mixed with water, which was continued during several days without the assistance of any other medicament. Two days after my first visit the child willingly accepted some beef-tea, which he had until then obstinately refused. He then asked for food, and we were compelled eventually to restrain the child's demands for food, his appetite becoming more and more urgent every day. The fever, which at first had been marked by a pulse of 128 to 132, abated in a regular manner, and at the end of eight days the pulse had fallen to 80, without any exacerbation in the evening.

The quantity of food was then slowly increased, and the wine of lacto-phosphate substituted for the syrup. The child soon recovered his entire health.

CASE IV.—At the end of the first week of a case of typhoid fever of an apparently benign character in a child, delirium and vomiting supervened. It was then that, seeing the utter impossibility of the child's tolerating any alimentary liquid whatever, even milk or beef-tea mixed with water, I prescribed as its only drink Dusart's syrup mixed with water. The first effect of the medicament was to put a stop to the vomiting.

The fever, which was still very high, pulse 130 to 138, excited thirst; and in less than two days the little patient drank a phial of the syrup with water. Delirium then completely disappeared, and liquid food was well borne. I was especially struck during the following days by the development of the appetite. As the child suffered less from thirst, instead of diluting the syrup in a

large quantity of drink, I contented myself with administering one spoonful of the pure syrup every three hours.

Convalescence speedily set in. Only a month after the outset of the disease the child was perfectly cured.

I do not wish to multiply cases of this kind, but I think it of importance to mention how many services this medicament rendered me in the numerous and grave cases of typhoid fever which we have had to attend during the siege of Paris. The detestable hygienic, climatic, and even moral conditions in which at that time our patients in Paris were placed, caused the epidemic of typhoid fever to assume a form of particular gravity.

The adynamic form prevailed. The greater part of my patients were submitted to the use of the lacto-phosphate, either pure or diluted with drinks. This medication succeeded admirably. The ordinary history of the disease, as influenced by the drug, was as follows :—

Thirty-six or forty-eight hours after the absorption of the lacto-phosphate of lime, the pulse would become less frequent and the temperature lower. At the same time the countenance lost that expression of stupor which is so striking in the adynamic forms of the disease; and, to be brief, the phenomenon which was most marked of all was the rapidity with which, notwithstanding the gravity of the affection, I saw my patients enter into full convalescence.

In this last stage, when the acute phenomena have disappeared, it cannot be said that all peril has entirely ceased. We are often then placed between two alternatives: either the organism, exhausted by its recent struggle for life, remains prostrate, and allows only of an insufficient alimentation, or, the appetite being awakened, the too small quantity of gastric juice does not allow the stomach, still much enfeebled, to digest the food which the patient takes.

Now, in these cases we find in the lacto-phosphate of lime at once the chemical agent of digestion and the natural excitant of nutrition, which permits us to overcome two formidable evils, and to secure a speedy restoration to the normal condition. The cases which I have related do, I hope, afford sufficient testimony of the correctness of my assertion.

THE PHYSOSTIGMA VENENOSUM IN EPILEPSY AND PROGRESSIVE PARALYSIS OF THE INSANE.

BY S. W. D. WILLIAMS, M.D.

Medical Superintendent of the Sussex Lunatic Asylum, Haywards Heath.

THE *Physostigma venenosum* (Calabar bean) has been proved by Dr. Fraser,[1] of Edinburgh, to have special powers over the spinal cord, to destroy reflex action, and to paralyse the heart. Such being the case, it struck me, after reading Dr. Fraser's learned paper, that we had in the Calabar bean an agent that might be serviceable in the treatment of epilepsy. I therefore instituted a series of experiments, with a view to test its value in epilepsy, and the results of these experiments I now propose to embody in the following paper.

My experiments were conducted as follows. I chose twelve ordinary epileptics in the Sussex County Asylum, and noted the number of fits daily for six months; I then had them all weighed, and put them on 1 gr. of the bean each twice daily. This I continued for six months, weighing them every month, and increasing the dose of the drug by ½ gr., until the sixth month, when they took 3½ gr. twice daily. I then left off all the medicine, and registered the number of fits for another six months. I also, during the months the patients were taking the drug, paid special attention to the pulse and temperature, and any unusual phenomena.

For convenience of reference I have arranged the results of my observations in a tabular form, as follows :—

[1] "On the Physiological Action of Calabar Bean," by Thomas R. Fraser, M.D.

TABLE I.

Showing the number of Epileptic Fits monthly, for six months before the Physostigma was being given, for six months when it was given, and for six months after, when it was not given : —

	Under no Treatment.							Taking Physostigma venenosum.							Under no Treatment.						
Initials.	July. No. of Fits.	Aug. No. of Fits.	Sept. No. of Fits.	Oct. No. of Fits.	Nov. No. of Fits.	Dec. No. of Fits.	Total.	Jan. No. of Fits.	Feb. No. of Fits.	Mar. No. of Fits.	Apr. No. of Fits.	May. No. of Fits.	June. No. of Fits.	Total.	July. No. of Fits.	Aug. No. of Fits.	Sept. No. of Fits.	Oct. No. of Fits.	Nov. No. of Fits.	Dec. No. of Fits.	Total.
M. A. T. .	5	2	5	5	—	—	17	—	1	—	2	3	1	7	3	2	—	2	4	2	13
H. B. . .	26	1	6	25	—	16	74	2	5	20	2	5	3	37	14	14	14	1	23	1	67
M. A. M. W.	37	47	56	35	12	19	209	31	23	26	29	29	58	196	38	25	31	48	47	51	240
R. W. . .	35	36	4	37	6	8	123	7	21	3	22	30	19	102	20	19	45	17	18	30	149
C. A. . .	28	33	37	44	26	26	194	25	19	21	12	26	23	126	22	31	18	10	21	33	135
S. L. .	22	33	20	8	1	8	92	3	5	14	16	17	24	79	8	19	5	15	19	22	88
H. F. . .	19	8	14	11	5	5	62	15	5	8	11	15	12	66	12	17	17	12	8	11	77
E. H. . .	—	—	4	1	1	7	13	3	1	—	10	—	2	16	—	20	4	4	13	6	47
E. C. . .	—	—	—	—	3	4	7	2	—	3	1	9	5	20	—	—	1	2	3	10	16
V. D. . .	1	4	7	8	—	—	20	12	2	9	7	3	8	41	2	3	2	7	6	4	24
A. B. . .	—	2	—	3	—	1	6	1	26	—	—	—	—	27	1	—	—	1	1	4	7
M. R. C. .	29	23	7	18	13	21	111	15	25	23	3	16	36	118	18	15	10	8	42	16	109

From this table it will be seen that in six of the cases under treatment there was a very considerable decrease in the number of fits during the six months they were taking the bean, as compared with the six months previously; and, what is still more remarkable, that when the bean was omitted the fits, without exception, began to increase again in every case. This was very marked in some of the cases. Thus, C. A. had 194 fits during the first six months, and only 126 whilst taking the medicine; but they increased to 135 in the following six months, when it was omitted. In the other six cases there was a slight increase in the number of fits during the administration of the drug, but this increase was not nearly so great as the diminution in the other cases, neither was there the same tendency to return to the nominal numbers after the drug was omitted.

TABLE II.

Showing the Weights of each Patient, taken monthly, during the time the Physostigma venenosum was being used.

Initials.	Jan.	Feb.	Mar.	April.	May.	June.	July.	Remarks.
	st. lbs.	st. lbs.	st. lbs.	st. lbs.	st. lbs.	st. lbs.	st. lbs.	
M. A. T. .	7 8	7 6	7 3½	7 3	7 2	7 3	7 2	Decrease of 6 lbs.
H. B. . . .	6 12	7 6	7 3½	7 3	7 2	7 2	7 3	Increase of 5 lbs.
M. A. M. W.	6 12	6 8	6 8½	6 9	6 7	6 6	6 9	Decrease of 3 lbs.
R. W. . .	8 1	8 2	8 0	8 0	7 11	7 11	7 11	Decrease of 4 lbs.
V. D. . . .	11 8	11 5	11 3	11 2	11 2	11 7	11 8	Stationary.
E. C. . . .	7 6	7 3	7 6	7 7	7 8	7 5	7 8	Increase of 2 lbs.
H. F. . . .	9 6	9 6	9 6½	9 2	9 5	9 7	9 11	Increase of 5 lbs.
E. H. . . .	8 4	8 2	8 1½	8 0	8 3	8 2	8 3	Decrease of 1 lb.
S. L. . . .	8 5	8 12	8 9½	8 10	8 9	8 10	8 11	Increase of 6 lbs.
C. A. . . .	10 9	11 12	11 0	—	11 5	11 5	11 5	Increase of 10 lbs.
A. B. . . .	9 10	9 10	9 0	9 13	9 13	10 2	10 3	Increase of 7 lbs.
M. R. C. . .	9 8	9 8	9 5	9 9	10 1	9 7	9 12	Increase of 4 lbs.

In this table we have recorded the weight of each patient taken on the first day of every month whilst they were taking

the Calabar bean. It will be seen that seven increased in weigh four lost, and one was stationary.

Table III. compares the results of the two previous one: From it we see that out of six patients whose fits were lessenec three lost weight; whereas only one lost weight amongst thos who were not benefited by the drug. But this fact, if wortl anything, seems contradicted by the case of C. A., who gaine

TABLE III.

Showing the Result briefly of the two previous Tables.

Initials.	Total No. of Fits during six months before taking the medicine.	No. of Fits during six months when taking the medicine.	Decrease in number of Fits.	Increase in number of Fits.	Alteration in weigh at end of six months of taking the medicine.
M. A. T. . .	17	7	10	—	Decreased 6 lbs.
H. B. . . .	74	37	37	—	Increased 5 lbs.
M. A. M. W.	209	196	13	—	Decreased 3 lbs.
R. W. . . .	123	102	21	—	Decreased 4 lbs.
C. A. . . .	194	126	68	—	Increased 10 lbs.
S. L. . . .	92	79	13	—	Increased 6 lbs.
H. F. . . .	62	66	—	4	Increased 5 lbs.
E. H. . . .	13	16	—	3	Decreased 1 lb.
E. C. . . .	7	20	—	13	Increased 2 lbs.
V. D. . . .	20	41	—	21	Stationary.
A. B. . . .	6	27	—	21	Increased 7 lbs.
M. R. C. . .	111	118	—	7	Increased 4 lbs.
Totals .	928	835	162	69	

10 lbs., and yet is the very patient whose number of fits experienced the greatest diminution in numbers. And again, A. B., whose fits increased from 6 to 27 when taking the drug, gained 7 lbs. Therefore I fear that the only fact these observations as to weight prove is that, as a rule, the Calabar bean given in doses up to 7 grs. a day does not interfere with the nutrition processes, or, at all events, not materially.

It has already been pointed out that the increase in the

number of fits of the six who were not benefited during the use of the drug was much less than the increase of the number of those improved; so that the improvement in the one class of cases considerably counterbalances the deterioration in the other.

Such being the case, it was reasonable to suppose that, assuming the drug to be the cause of the improvement, *cæteris paribus*, we should find the cases in which this improvement was manifested to be of one peculiar class, and to differ either in their etiology or pathology, or in the phenomena accompanying the epilepsy, or the intensity of the prodromata, from the other cases, in which there was no improvement. But I am bound to record that, notwithstanding most careful examination and a thorough knowledge of each case, gained by years of intimate watching, no such distinction could be marked.

If the result of the administration of Calabar bean is to deaden reflex action, I surmised that if I could demonstrate the epilepsy in the improved cases to be due to eccentric irritation, we might here have the explanation of the improvement, and I directed my attention specially to this point, searching carefully in each case for indigestion, masturbation, worms, catamenial irregularity, &c., and for prodromata, but without result. I cannot but think, however, that these are the cases in which the bean is likely to be of most service. Unfortunately they are not often met with in asylums, so that I have had no chance of trying.

Another point to which I directed my attention was the fact as proved by Dr. Fraser,[1] that the action of the bean tends to expand the arterial walls. Now it is a well-known fact that in some cases of epilepsy a remarkable pallor often accompanies, and in some cases precedes, the period of tonic spasm of the seizure, together with a lessening of the volume of the pulse. I could not, however, find that this pallor was, as a rule, confined to those cases benefited by the drug; neither could I prove that the length of time it lasted, or its intensity, was diminished. Indeed it was an ordinary accompaniment of the fits alike in some of the unimproved as the improved. Epilepsy is believed by some to be due, as Dr. Needham reminds us, to

[1] Loc. cit.

primary irritation of the sympathetic, causing the vaso-motor nerves to increase arterial tension, and so producing sudden cerebral anæmia; and Dr. Fraser's experiments prove that the effect produced in the heart by the bean is not through the vagi nerves, but through the cardiac ganglia; so that the bean may relieve epilepsy by its power of affecting the sympathetic, and thus reducing the tendency to the above-mentioned arterial tensions.

If in truth the Calabar bean has any influence on epilepsy, I cannot but think that its power must lie in the fact conclusively shown by Dr. Fraser, and which my own observations abundantly bear out—that even in moderate doses it causes a decrease in the volume and frequency of the pulse, acting of course through the heart.

In this property it resembles the bromide of potassium. Now the best authorities seem to be agreed that the proximate cause of epilepsy is exaggeration of the impressibility and increased irritability of the motor excitability of the functions of the medulla oblongata. This must be due to mal-nutritive changes in the organ, and would therefore lead us to suppose that any power acting through the heart and reducing the flow of the excess of blood would lessen the number of fits, by the mere fact of there being less deleterious matter stored up in the medulla; granted this, and the decrease in the number of fits by the Calabar bean is explained.

Regarding the physiological effects of the bean, there is no doubt that it causes increased action of the cutaneous glands, as was evinced in every case by an unusual moisture of the skin even when the dose was but small. This was specially remarkable in the cases of progressive paralysis. Catharsis and nausea are said often to accompany the use of the drug, but I have never observed any tendency to them, not even in cases taking as much as eight grains daily.

The effects on the pulse and temperature were in most cases very marked; the pulse being reduced frequently five or ten beats per minute, and the temperature from a half to two degrees. In many of the cases there was marked indolence and a decided flaccidity, so to speak, of the muscles generally.

I have also tried this drug in several cases of *progressive paralysis of the insane*, and at the present time have three such cases under treatment. When the medicine was first ordered, fully six months ago, all the patients were in the first stage of the disease, and they have taken it regularly up to the present time, but with no benefit whatever. On the contrary, in every case the disease is advancing with unusually rapid strides.

THE MEDICAL DECLARATION RESPECTING ALCOHOL.

THE following letter from Dr. Parkes, on this subject, deserves a prominent place :—

"ROYAL VICTORIA HOSPITAL, NETLEY,
6th January, 1872.

"MY DEAR DR. ANSTIE,

"Your allusion to me in the last number of the *Practitioner* obliges me to ask for a little space in your journal to reply to some of your remarks on the 'Declaration respecting Alcohol.'

"It appears to me that you do not fairly state the very obvious meaning of the first paragraph of the 'Declaration.' It does not assert, nor if carefully read can it possibly give rise to the inference, that the great national intemperance is owing to our prescription of alcohol; nor has it been so understood by the public. I have read twenty leaders in the different London and provincial papers, and in not one of them has the first paragraph of the 'Declaration' been interpreted in your sense. The plain statement is, that cases of drunkenness have arisen from inconsiderate prescribing; and as you not only admit this, but have already published a warning on the subject, I cannot see what logical ground you have for the expressions you have used in reference to the paragraph and to those who have signed it.

"With respect to the second paragraph, it is evident that we are looking at the same thing from different points. In a declaration addressed to the public it would have been out of place to enter into any question of the mode in which alcohol acts, or

into the boundaries which separate moderation from excess. But it is certain that the public generally look upon alcohol not only as a necessity, but as an article of diet which is in the highest degree strengthening and force-giving, and which, short of intoxication, can hardly be taken too freely. Nothing could show more clearly this general notion than the statement made by the *Daily News* in commenting on the 'Declaration.' The leading article says:—'A great part of the drinking done in this country —by far the greatest part of all that is not caused by mere love of excitement and sottishness—is based on an honest British conviction that a strong stimulant every now and then is really a wholesome and invigorating sort of thing.'

"That this is a widely-spread opinion will, I think, be admitted by all. In society, too, how constantly do we hear men who declare that it is not possible to get on without a large amount of alcoholic drink of some kind, and who think that perfect health cannot otherwise be maintained; although there are in this country at least several hundred thousand adults, and in other countries many millions of people, who never touch any alcohol, and who enjoy the highest degree of bodily and mental vigour.

"How deeply this opinion has spread in all classes is a matter of daily observation. If any one point in dietetics is clear, it is that healthy children do not require alcohol, and are often injured by it. Yet many parents believe that their young children must have wine or beer, and in quantities which, when the age is considered, are quite extreme. There must be few medical men who have not noticed the mingled surprise and incredulity with which advice which runs counter to this view is often received.

"I do not wish to prolong the argument, but will simply ask if such a belief as that stated above is not widely spread, and whether it is not completely false?

"Your investigations on alcohol seemed to give for the first time a scientific expression to the phrase 'moderation.' You decided that about one-and-a-half ounce of absolute alcohol was the amount which an adult could dispose of without any appearing in the urine, and thus indicating that the alcohol could no longer be used, but was forcing its way out. In my observations

the amount which affected a strong healthy soldier with what may be fairly called symptoms of poisoning was two ounces. I believe that these symptoms were actually produced by a less quantity, and therefore adopt your estimate of one-and-a-half ounce as the limit of the proper dietetic amount. This would be contained in one-and-a-half pint of beer with 5 per cent. of alcohol, or in fifteen ounces of claret with 10 per cent. Now is it not quite correct to say that most men would consider these quantities absurdly small; that they not only take far more than this, but consider that it is necessary for their health and for the due performance of their work that they should do so? If this be the case, and I think you will not deny it, surely the framers of the 'Declaration' were fully justified in the assertion that the public 'immensely exaggerate' the use of alcohol as an article of diet.

"With respect to your statement that the second paragraph will mislead the public, and will cause them to believe that alcohol is not destroyed in the body, I must also join issue with you. There is not the slightest hint given in the 'Declaration' one way or the other, nor can it be held to incline to either view. In any case of this kind all that the profession could do, would be to impress on the public those points on which the profession is itself agreed and acts. I think we all agree pretty well as to the action of alcohol on digestion and on the stomach, on the heart and vessels, and on the nervous system. On all these points the public vastly overrate the good effects of alcohol, and underrate its demerits; and on these matters I wish an authoritative statement could be made. But on such a matter as the destruction or non-destruction of alcohol in the body, the time has, I think, not yet come for any tolerably unanimous statement from the profession. Such a view as you find in the second paragraph was, I believe, never contemplated by the writers, nor can I find it there.

"With regard, however, to the destruction of alcohol in the body, I admit at once that the experiments of Schulinus, yourself, and Dupré have rendered it very probable. I do not think we can say it is *proved*, in the scientific sense of the word, until the quantitative determination of the amount of exit from the skin and lungs is far more complete. But even if the complete

destruction within certain limits were quite clear, this fact alone would not guide us to the dietetic value of alcohol. We have first to trace the effect of that destruction, and learn whether it is for good or for evil. You seem to think that the destruction must give rise to useful force, but I cannot see that this is necessarily so. We require to know more precisely the effect on the elimination of carbon and on the tissues and their functions, before we can decide on the true action; so that my belief is, that we must at present judge from those effects which we can trace, and not from a single fact which is not yet really more than highly probable. All this, however, has nothing to do with the 'Declaration,' which very properly, as I take it, kept clear of a question of this kind.

"Of course nothing I have said above applies to the *proper* use of alcohol in disease. The 'Declaration' expressly reserved that point.

"I feel sure that all who signed the 'Declaration' will feel surprised at what you say about 'pressure and terrorism,' as if it were possible that such agencies could have been employed.

"Believe me, very sincerely yours,

"E. A. PARKES.

"DR. ANSTIE, Editor of the *Practitioner*."

I VERY gladly insert the above letter, which, though it does not alter my views as to the expediency of the recent "Declaration," gives a new proof of the thoroughly candid spirit in which Dr. Parkes approaches the Alcohol question, and renews my regret that his authority should have been given to what I cannot but consider an ill-advised manifesto.

1. When Dr. Parkes argues that there is no danger of the public's interpreting the first paragraph of the Declaration as a general self-accusation by the profession, he seems to forget some important circumstances. It doubtless is the duty of physicians to warn each other against errors of practice which, though they are not often committed, are of such an injurious

tendency as to cause great evil in individual instances; but if the profession takes the extraordinary course of formally publishing these cautions to the whole world, it surely implies, to the understanding of non-professional persons, that the medical body is sensible of a general and wide-spread delinquency on its part, which can only be atoned for by a general confession and self-humiliation. That being the case, it must be further remembered that there is a body—the Teetotal Society—which is ever ready to interpret, in the most extreme sense, any admissions, on the part of medical authorities, which may seem to imply censure of the use of alcohol. I say, without fear of contradiction from any impartial person, that the manner in which the teetotallers have dealt with previous utterances of the profession in favour of temperance has been uncandid and disingenuous. They have persistently attempted to persuade the public that the dietetic use of alcohol is altogether, and its medicinal use is almost entirely, disapproved of by the scientific conscience of the profession; and that only a certain laxity of principle prevents the mass of medical men from relegating alcoholic drinks to the same category as that in which strychnia and arsenic find a place. Their agents are numerous and enthusiastic, and not too scrupulous: they represent a cause which is nominally allied with a philanthropic movement; and they have no one to contradict them save the very few scientific men who, feeling keenly all the real evils of drunkenness, can nevertheless recollect that, in science, absolute truth is the first thing—its practical bearings altogether secondary, and are able to believe that truth can never be mischievous in the long run, even though it may oppose the revolutionary proceedings of would-be reformers. It is these same teetotallers who will be the ubiquitous and persistent exponents of the new Medical Declaration; and the public will practically hear no correction of their version of the matter. That version, if we are to judge by former precedents, will represent the medical body as reluctantly forced to acknowledge a general error of practice in the past, which has been of serious damage to public morality. I cannot for a moment admit the indictment, and I think it was unwise of the profession to afford an excuse for its preferment.

2. As regards the interpretation that the public is likely to

put upon the paragraph that states that the dietetic value of alcohol has been "universally exaggerated," I firmly believe that Dr. Parkes is mistaken in his view. He thinks that the public knows and cares nothing about scientific theory: I believe, on the contrary, that the intelligent part of the public knows just so much about science, in the general way, as to be particularly confident of the truth of theories that were in vogue some ten or fifteen years back. In regard to the Alcohol question, a striking example of this was afforded by an article that appeared about three years ago in *Fraser's Magazine*, which cited the conclusions of Lallemand and his co-workers as the latest and most infallible utterance on the subject, although their incorrectness had been proved by a mass of subsequent experimental work, independently performed by three or four observers, and extending over several years.

As to the non-reading and non-intelligent part of the community, it is doubtless true that absurd notions, not only about alcohol, but about everything that pertains to dietary and hygienic questions, widely prevail amongst them. But I know no good reason why we should take a course so unusual as that of a general and vague professional declaration, *ex cathedrâ*, on the one question of the dietetic use of alcohol, any more than on the other subjects, many of which are at least equally important. It seems to me far better that the discussion of this particular topic should take the ordinary form of scientific controversy and argument, until the whole profession is so thoroughly penetrated with just and rational ideas on the matter that each medical man throughout the kingdom can with confidence lay down rules for the guidance of his patients and their families. And I may surely be allowed to say that I have spared no pains to assist in bringing about such a state of things. The pages of the *Practitioner* have borne testimony, I think, to my earnest desire that the employment of alcohol, whether in sickness or in health, should constantly be regulated by the teachings of scientific observation carefully applied to each individual case. I should have been content, and more than content, to have spent any amount of further time and trouble, in conjunction with so candid and competent an investigator as Dr. Parkes, in

settling those points which are still in doubt respecting the use of alcohol; but I think that, as an old pupil of Todd, and having done everything that lay in my power to secure to medicine those benefits from the use of alcohol which Todd revealed, and at the same time to check tendencies to an indiscriminate employment of this agent, I have the right to resent strongly the ungenerous calumnies which certain writers are never tired of heaping upon the memory of my old master, and (by implication) upon all who were trained in his school. I believe no reader of these words, who has a spark of manliness in him, will blame me for being jealous, even to bitterness, of disrespectful comments on Todd by men who have altogether lacked the patience and determination necessary to solve the important physiological and therapeutic questions which he was mainly instrumental in bringing under our notice. It is very easy to declaim, in a general way, against the "indiscriminate" use of alcohol: it is exceedingly difficult and fatiguing to follow out a serious investigation either into the physiological action or into the therapeutic effects of alcohol. I am sure Dr. Parkes, who really has taken the latter kind of trouble, will confirm my estimate of the comparative difficulty and labour of the two sorts of proceeding.

3. And now as regard the matters of scientific fact which are in dispute between Dr. Parkes and myself. It is acknowledged by him that his own researches confirm my statement as to the daily quantum of alcohol that can be taken without the production of any recognisable narcotic or other toxic phenomena, and without the appearance of unchanged alcohol in the urine. His *caveat* as to the elimination by the skin and lungs is to me not intelligible, because, even granting that the quantitative analytical demonstration is incomplete, the enormous discrepancy between the quantities of alcohol that ought to be found, and the minute fractions which alone have been detected, make my conclusions, as it appears to me, a mere matter of the most ordinary common-sense reasoning. But Dr. Parkes proceeds to say, that even granting that the largest part of the ingested alcohol is chemically destroyed within the body, that does not prove that this destruction must give rise to useful force. I confess I am

surprised at this argument, for what are the facts? Alcohol is a hydrocarbonaceous body which (on this hypothesis) can be chemically destroyed, to the extent of nearly *an ounce and a half daily* within the body, without provoking any immediate morbid phenomena whatever. Now, I ask Dr. Parkes whether he is acquainted with any other instance, in the whole circle of physiology, where a hydrocarbonaceous substance is dealt with in this manner, and in anything even remotely approaching this quantity, without being devoted either to the construction of tissue, or to the generation of force which will display itself obviously under some one of the modes of motion. He would probably at once reject the idea that alcohol is employed in constructing tissue. But if the result of the chemical changes be merely the development of force, then, surely, that force-production must be on so large a scale that it must either be applied directly to the ordinary work of the organism, or it must make itself visible in *severe perturbations* of function of which we see not a trace in the moderate drinker.

One word must be added in reference to my expressions as to "pressure" and "terrorism" in the mode of obtaining signatures to the recent Declaration. I used those words with no offensive intention whatever. I merely meant to imply that the movement did not in the first instance issue spontaneously from the profession, but from the Temperance League; that it was passed on from the Editor of the *British Medical Journal*—a semi-official person—to Dr. Parkes, and others, but that there was no process of sifting by other competent authorities of the special physiological and clinical questions (many of which are quite new); and finally, that the Declaration was signed by many persons who did so simply because they thought that to withhold their signature would be to seem the enemies of temperance, and not because they were convinced either of the truth of the document or of the expediency of its publication. This last item is all that I intended to express by the word "terrorism"—the terrorism consisting, of course, simply of a somewhat unfair appeal to general philanthropic feeling on a question where scientific fact ought to have been considered before anything else. The Editor of the *British Medical Journal* has protested warmly against

these phrases, but I give him my word of honour that I did not for a moment suppose, or intend my readers to suppose, that he sent his office porter round with a thick stick, to threaten to break the heads of those gentlemen who hesitated to sign the Declaration. I simply conveyed what appeared to me the plain sense of his own description, in the *Journal*, of so much of the transaction as he was concerned in; and if I was mistaken, the fault was not altogether mine.

F. E. ANSTIE.

WESTMINSTER HOSPITAL PAPERS.

IV.

ON SIMPLE DISLOCATIONS OF THE INNOMINATE BONE.

BY C. HOLTHOUSE,

Surgeon to the Hospital.

FRACTURES of one or more of the pelvic bones are not rare, and when caused by a crushing force may be accompanied by a separation of the pubic bones at their symphysis, and a tearing of the os innominatum from the sacrum. This last accident is usually produced by such tremendous violence, and is attended with so much injury to the soft parts both within and without the pelvis, that recovery rarely takes place.

Traumatic displacement of one innominate bone, both at its pubic and sacro-iliac articulations, without fracture or other complication, is certainly not common, though probably of more frequent occurrence than is imagined.

In looking up the literature of this subject, I can find only three or four cases besides my own, in which such simple uncomplicated dislocation was recognised during life, though Malgaigne[1] has collected four cases of traumatic separation of the pubic bones without fracture, and Sir A. Cooper[2] and Leute[3] each describe a

[1] Malgaigne, "Traité des Fractures et des Luxations," 1855, tome ii. p. 775.

[2] Cooper "On Dislocations and Fractures of the Joints." Edited by Bransby B. Cooper, F.R.S., 1842, p. 122, Case 79.

[3] Leute, "New York Journ. of Med.," 2nd ser. vol. iv. p. 286.

case. In several of these it is highly probable that there must also have been disjunction, if not dislocation, of the sacro-iliac joint. In Sir A. Cooper's case, for example, it is stated that "when the patient left the hospital, three months after the accident, there was some slight separation of the pubes remaining, nor were the two lower extremities, or the anterior and superior spinus processes of the ilia, perfectly symmetrical."

In Murville's,[1] one of the cases collected by Malgaigne, there was severe pain in the left sacro-iliac joint, increased by moving the corresponding limb. So likewise in the recorded cases of luxation of the ilium from the sacrum, though the condition of the pubic symphysis is not mentioned, it is difficult to believe in its integrity, unless a fracture of the pelvic circle intervened.

Passing now to those cases in which the dislocation of the entire innominate bone was recognised, we have first that of Enaux[2] in 1784: it was caused by a fall from a great height, and was unaccompanied by spinal concussion or any visceral lesion; the left innominate bone was displaced upwards and the whole limb shortened, although the measurements from the anterior superior spine of the ilium to the trochanter and to the lower border of the patella proved that there was no fracture of the cervix femoris, as was at first supposed, and that the shortening of the limb was only apparent. There was severe pain in the sacro-iliac and pubic symphyses, increased on flexing and extending the corresponding limb.

The next case in point of time is that of Tavignot, published in *L'Expérience*, 28th September, 1843, which was also produced by a fall from a height. The bone was dislocated forwards; the body of one pubic bone riding in front of the other, and a corresponding depression existing behind, at the junction of the ilium with the sacrum; the whole bone had also undergone a sort of rotation on its axis, the tuberosity being nearer the middle line, the pubis in front, and the crest and posterior spine of the ilium backwards and outwards. Both these cases recovered. The third case is that of Parmentier, published in the *Bull. de la Soc. Anatomique*, 1850: it was produced by the fall of a large oak church-

[1] Malgaigne, loc. cit.

[2] Enaux, "Mém. de l'Acad. des Sciences de Dijon," tome iii. p. 151.

door, which threw the patient backwards and struck the front of the pelvis ; here, although there was no fracture, all the ligaments on both sides of the pelvis were torn through, and the man died within twenty-four hours.

My attention was first drawn to this class of injuries by the following case :—

W. G——, æt. 28, a healthy-looking fresh-coloured young man, was admitted into the Westminster Hospital under my care, December 27th, 1869, for syphilitic osteitis of both tibiæ, when I observed that the lower limbs were of unequal length, the left being shorter than the other by two-thirds of an inch. There was no real shortening of the limb, however; the left anterior superior spine of the ilium being on a higher level than the right, and situated somewhat more posteriorly; and, on examination, this was found to arise, not from any twist of the pelvis and spine, as is so common in hip-joint disease, but from an actual dislocation of the whole of the left innominate bone upwards and backwards. This was very evident on tracing the attachment of Poupart's ligament to the spine of the pubis, which was considerably higher on the left than on the right side. But the displacement of the bone was most manifest when viewed from behind, and the patient was in a sitting posture, the posterior spines of the ilium forming a marked projection beyond the sacrum, which they did not do on the opposite side. The patient also volunteered the information that he could not sit level, the buttock on that side being too high, and requiring his hand or a book to be placed beneath it, to make him comfortable. He did not walk perceptibly lame, and the movements of the hip-joint were perfect. The history he gave of his case was the following :—When between sixteen and seventeen years of age, he was driving a young horse, which shied; the reins fell out of his hands, and in endeavouring to recover them he overbalanced himself and fell off his seat, catching hold of the shafts in his fall; the horse breaking into a gallop, he was dragged some distance, hanging by his hands, but being at length obliged to leave hold, he fell in front of the cart wheel, which partially passed over him, while his trunk was forcibly bent on his thighs. He was unable to rise, and was carried to St. Mary's Hospital, where he remained five weeks, the three first in bed, but afterwards he

walked about with a stick, and continued to do so for several months, suffering all the time from pain in the left sacro-iliac joint, which indeed continued for some time after he had thrown away his stick. For three days after the accident he could make no water, but he recovered the power of doing so after a large quantity of urine had been drawn off by the catheter. He is quite sure he was never lame before the accident, and it was only afterwards that he found he could not sit level.

January 29th.—Discharged cured of the osteitis for which he was admitted.

The next case which came under my observation was on the 27th of August, 1870, and for seeing which I am indebted to my friend Dr. Rossignol, of Jersey. The patient was a lad sixteen years of age, who had fallen off a cart eleven weeks previously, and the wheel of which struck the left hip while he was on the ground, dislocating the innominate bone on that side upwards and backwards, but producing no other injury. The deformity was so marked as to be quite evident even to his parents, and Dr. Rossignol, who was called in, at once recognised the nature of the accident, though he had never before seen such a case. The other symptoms were pain in the sacro-iliac and pubic joints, mobility of the whole bone, apparent shortening of the limb, inability to bear any weight on it, and an entire absence of symptoms referable to any other accident. When I saw the patient the bone was still in its abnormal position, and the lower limb from two-thirds to three-quarters of an inch apparently shorter than its fellow; no movement could be elicited between the ilium and sacrum, but he could not bear much weight on the limb of that side, and could only walk about the room cautiously with the aid of a stick. The hip-joint movements were perfect.

Two other cases have been recently published in the *Lancet*, though but few details are given. The first occurred in the practice of Mr. Russell, of Newcastle, and is recorded by Dr. Page, the house-surgeon of the Newcastle Infirmary, in the *Lancet* of August 6th, 1870. There was complete dislocation of the left innominate bone from the sacrum and pubis, without fracture, but the anterior wall of the bladder was lacerated, and the patient lived only from Friday till the following Monday.

The injury was caused by a crush between the buffers of an engine and a coal-truck.

The other case occurred in the practice of Mr. James Adams, at the London Hospital, and is recorded in the *Lancet* of December 24th, 1870. The patient was a Greek sailor, who ten weeks before admission had received a violent blow above the right acetabulum, producing complete disjunction of the innominate bone at its pubic and sacral attachments. By rest and a spica bandage, the bone, a month afterwards, was found to be less moveable.

Causes and Direction of the Dislocation.—With regard to the causes of this accident, they are perhaps sufficiently illustrated by the cases narrated. Falls from a height, in which the blow has been chiefly borne on one buttock; violent blows on the back, the front, or even the side of the pelvis; heavy bodies passing over the part, or its being subjected to pressure between two opposing forces,—all, or any of these, according to the degree of the force, will probably determine the extent of the mischief as well as the direction and degree of displacement. Of the seven cases narrated, two were caused by falls from a height, one from a heavy weight falling on the front of the pelvis, two from pressure, and two from blows. In two of the cases the direction of the dislocation was upwards and backwards; in one it was directly upwards, in one forwards, combined with a slight rotatory twist of the bone on its long axis; in two probably, although the direction is not mentioned (Parmentier's and Page's), backwards; and in the remaining one we are left in doubt whether the disjunction was attended with any displacement: indeed there is good reason for believing that there may be a partial, or even complete, tearing through of the two symphyses, producing great mobility of the bone, but without actual luxation.

Symptoms and Diagnosis.—The symptoms of this injury, though well marked, have not always sufficed to determine its diagnosis. This has arisen from the rareness of this dislocation pure and simple, and the comparative frequency of fractures of the pelvis, while it is by no means uncommon to meet with a combination of the two accidents: first in point of frequency are fractures of the pelvis; next, fractures complicated with

dislocations; lastly and least frequent, disjunctions and dis
cations only. The symptoms proper to this accident are p
in the situation of the two symphyses, often with much swell
and ecchymosis; mobility of the whole bone with a pecul
smooth gristly crepitus; displacement, most frequently upwa
and backwards, and, as a consequence, shortening of the lo
extremity of the same side, and inability to bear any weight
it. The accidents with which it has been confounded are fr
tures of the pelvis and fractures of the cervix femoris: Malgai
owns to having mistaken a disjunction of this bone for a fr
ture of the horizontal ramus of the pubis; and in a case of t
dislocation complicated with fracture of the horizontal ramus
the pubis and the ascending ramus of the ischium, Gerdy[1] p
sisted in attributing the shortening of the limb to a fracture
the cervix femoris, till he was undeceived by a post-mort
examination. Even Enaux at first fell into the same error. I
scarcely necessary to point out, now-a-days, that the mere sho
ening, or rather apparent shortening, of the lower limb ou
never to mislead the educated surgeon; for however great n
be the displacement or drawing up of the pelvis on one side,
relative position of the trochanter to the anterior superior sp
of the ilium, as well as the distance of this process from
lower border of the patella, must, in the absence of fracture
the femur, be the same in both limbs. Again, the ease w
which we can produce movements of one side of the pel
either by grasping it with our hands or by flexing and
tending the corresponding limb, while at the same time no t
bone crepitus is elicited by these movements, is sufficient
dence of the nature of the injury, and that it cannot be a pe
fracture.

Prognosis and Treatment.—In our prognosis we must
guided mainly by the extent of the lesion and the age
constitution of the patient. If the mischief is limited t
mere displacement of the bone in a young and healthy in
vidual, it will be favourable; if the contrary conditions
present, it will necessarily be very grave. In Parmenti
patient, who died in twenty-four hours, although there was
fracture and no visceral injury, nearly all the ligaments of

[1] Gerdy, "Archiv. gén. de Médecine," 1834, tome vi. p. 378.

pelvis were torn through on both sides; while in Page's the dislocation was complicated by a rupture of the bladder. Confining our attention, then, to the simple uncomplicated cases of dislocation, we may not only give a favourable prognosis as regards the saving of the patient's life, but may even look for a better result than was attained in the recoveries which I have recorded. There seems to be no reason why, in any of these examples, the bones might not have been replaced by a very moderate extension combined with manipulation; and that such a practice would be free from risk as well as advantageous to the patient, is rendered highly probable by Enaux's case. This surgeon, having found the bone dislocated upwards to the extent of two fingers' breadth, endeavoured to reduce it by pressure, but unsuccessfully; while the bone easily returned to its place by simple flexion of the limb, though the position could not be maintained. A bandage was therefore fastened round the pelvis, and the bone descended nearly to its normal level, and in seven weeks the patient was sufficiently well to get about, though still somewhat lame. With our present appliances, there can be little doubt that dislocations of this nature could be easily reduced and retained till a perfect cure resulted.

In the foregoing paper I have confined my remarks to cases of simple dislocation of the innominate bone of traumatic origin, and have purposely excluded those disjunctions of the pelvic symphyses to which the parturient female is liable.

V.

ON THE USE OF NITRATE OF SILVER IN CERTAIN LOCAL INFLAMMATIONS (TESTITIS AND CARBUNCLE).

BY GEORGE COWELL, F.R.C.S.

Senior Assistant Surgeon to the Hospital.

In offering in the pages of the *Practitioner* the following remarks, advocating the use, as a topical stimulant, of nitrate of silver in certain local inflammations, I would at once say that I

advance nothing new, nothing but what has been suggested and written about over and over again. A few years ago Mr. John Higginbottom published a book to advocate its use in cases of erysipelatous inflammation. In it and also in the pages of this journal he recommended its application in one of two forms—the ordinary brittle stick, or the concentrated solution of 80 grains of nitrate of silver to the four drachms of distilled water. The favourable results of the use of this solution in cases of erysipelatous and erythematous inflammations are well known; but the uniform success in my hands, during the last five years, of the use of the solid nitrate mentioned above, in cases of testitis and anthrax, has led me to recommend the more general adoption of this mode of treatment in these cases, as I am sure it requires only that its eminently satisfactory results should be known.

And first as to testitis. The ordinary commencement of the treatment of swelled testicle in the acute form is still too frequently the application of leeches. Of late years the plan of puncturing, with a thin sharp knife, the tunica albuginea of the hard and painful testicle, as recommended by Mr. Henry Smith, has been tried by many surgeons, and with, certainly, generally favourable results. The former mode of treatment I have long given up; the latter I have been willing and anxious to try; but so favourable and prompt has been the effect of the application of nitrate of silver, that I have not once had an opportunity of doing so.

The plan I adopt is the following:—The scrotum is held in such a way that the portion of it which surrounds the swollen testicle is rendered—if not already so—sufficiently tense to present a tolerably smooth surface of skin. This is first wetted by means of a sponge, or, better, by a piece of lint, previously dipped in water, and the solid nitrate of silver is then carefully and equally applied over the whole testicle. A suspensory bandage and rest are, of course, prescribed, and such general treatment as may be required. Pain disappears in from *two* to *six* hours, and this is accompanied and followed by a gradual diminution of the swelling, the reduction being generally about one-third during the first three days. Considerable smarting occurs for a short time after the application, and sometimes

there is some vesication. The further treatment of the case becomes exceedingly simple.

During the last five years I have treated in this way a large number of cases, and only twice has the application failed to reduce both pain and swelling: in both of these the appearance of the skin of the scrotum showed that the remedy had been but partially applied, and in both the symptoms were rapidly removed by a second and more careful application of the caustic. The rapid effect of this treatment is still more marked in cases of double testitis: the whole skin and dartos of the scrotum contracts firmly around the testes, speedily relieving the engorgement of the capillaries and seeming to produce a gentle uniform pressure on the swollen organs. I have never known abscess to occur in any case treated with nitrate of silver.

In both the forms of anthrax, carbuncle and boil, the application of the solid nitrate of silver affords the most speedy means of cure. One looks back, with feelings almost akin to horror, at the heroic plan of treating carbuncles, sometimes enormous in their size, by crucial incisions; cases, too, occur to one's memory in which, in spite of this operative procedure, the carbuncle still went on increasing in size; where, in fact, the incisions not only did no good, but positively did harm, by the shock to the patient and the increased risk of pyæmia. A lecture upon this subject by Sir James Paget appeared in the *Lancet*, Jan. 16th, 1869, in which he strongly condemned this mode of treatment.

The treatment he recommends is at first a piece of emplastrum plumbi with a hole in the centre; then resin cerate on lint, covered over with a large poultice (half linseed and half bread); and then, later, the careful application of carbolic acid lotion, or some other deodorising fluid. With these measures must, of course, be combined cleanliness, fresh air, and a careful regulation of diet.

I have found, however, that the duration of carbuncle is very materially diminished and its extension cut short, by preceding this treatment by the application of nitrate of silver freely over its surface, repeated, if necessary, once or twice after intervals of two days. Immediately after the application a small soft pad of dry lint is applied and retained by means of a piece of strapping and a bandage. The after treatment is the same as Sir James

Paget recommends, except that the poultice will be unne sary, and the internal administration of iron or other tonic generally be found useful.

Boils are treated in the same way, and will seldom requi second application of the caustic.

The *modus operandi* of the application of nitrate of silve these cases seems to be the energetic stimulation, and co quent contraction, of the capillaries and small arteries of part, whereby engorgement is diminished, the vessels are pl in a condition for returning to a healthy function, and mo exudation is diminished, arrested, and removed.

One case I may mention here. A woman attended at the patient room at the Westminster Hospital, with a large, hard, painful carbunculous boil occupying the whole of the lower The lip projected from the teeth to the extent of upwards of inches, and the increased saliva secretion ran from the mo as of course the lip was useless to retain it. There was a s point of ulceration almost in the centre of the inner side of lip, that side now facing upwards. The solution of nitrat silver was freely applied, and repeated once three days l both times followed by rapid diminution in the size of the sw ing, and the case made an uninterrupted recovery.

Reviews.

A Handbook of Therapeutics. By SIDNEY RINGER, M.D., Professor of Therapeutics in University College, and Physician to University College Hospital. 2d Edition. London: H. K. Lewis.

THAT a second edition of Dr. Ringer's useful work should have been called for within two years of the appearance of the first, is a proof that we were right in the anticipation which we expressed, that the work would become a class manual in general use. It now appears in a somewhat altered and improved guise, but retaining the main characteristics of the former edition. As regards the improvements, we are glad to see that he has called in the assistance of a friend to correct the sheets, and that some awkward mistakes which disfigured the book have disappeared; there is still somewhat, however, that might have, and has not, been done to improve the literary style, especially as regards its abruptness and want of continuity.

As we have said before, Dr. Ringer has the field all to himself, his book being the only one in the English language in which a serious attempt is made by the author to speak in his own name on the general subject of therapeutics. The able and useful work of Dr. Waring is mainly a compilation, and scarcely comes into the same category with Dr. Ringer's book; and certainly, the latter author need fear no competition from the mere chips and sawdust of therapeutics which are served up at the end of the botanical and chemical descriptions of drugs in the ordinary treatises on Materia Medica. This being the case, however, we regret that our author has not taken his responsibilities a little more seriously to heart. He has the opportunity of laying at least the foundation of a much improved classification of remedies; above all, a classification that should place every other kind of remedies, besides drugs, on a proper footing of equality with the latter. He has not yet done this; and some other omissions have a singularly regrettable effect just at the present time. For example, although he retains the comparatively long notice of cold baths, there is nothing, so far as we see, about that systematic employment of cool baths in fever, which is perhaps the most important and generally interesting subject, just now, in the whole range of therapeutics. Again, he has not said

anything respecting the medical uses of electricity; and even where he has noticed some things that are comparatively new, he has not always given us the recent facts: for instance, he speaks of oxygen, just as he did in the former edition, as if it were an agent that possibly or doubtfully possessed some real therapeutic powers, but which, from the non-existence of an already means of administering it, could not be tried in ordinary practice. Now this is actually quite incorrect, and ought to be very distinctly contradicted. We are personally, as yet, scarcely at all acquainted, from experience, with the effects of oxygen, and have formed no definite opinion as to the range of its action. But it is quite certain, on the one hand, that most respectable evidence exists in favour of its antispasmodic powers, and its valuable influence in certain forms of mal-nutrition; and on the other hand, there is no longer any difficulty in applying the gas, for very convenient portable apparatus has been made, by which the pure gas can be easily administered.

Our main objection, however, to Dr. Ringer's work is the want of any classification in which an intelligent student can take an interest. We well know that to make such an arrangement would be an arduous task, and that in the present state of our knowledge it could only be incompletely carried out: but we recur to our suggestions (*Practitioner*, Sept. 1869), as to the main outlines of such a scheme, which is not by any means impracticable, and which would surely be better than the incoherent sequence (rather than plan) which distinguishes this Handbook.

As before, however, though it is our duty to point out that Dr. Ringer's work is unequal, the last word that we have to say about it is, that it contains a large amount of material, a good deal of it original, to which English students had no access before; and there is this very great value in anything that Dr. Ringer reports on his own authority, that we instinctively feel sure that the observations have been made with the greatest care, and reported with anxious fidelity. We shall look forward with interest to the third edition, in which we hope to see the already considerable merits of the volume much augmented by a full inquiry into important subjects on which Dr. Ringer has not yet given us his opinion.

On the Treatment of Fractures of the Limbs. By SAMPSON GAMGEE, F.R.S. Edin., Surgeon to the Queen's Hospital, Birmingham. London: Churchills. Pp. 296.

IN this volume Mr. Gamgee ably and eloquently sets forth the advantages of the particular system of treatment—that by immovable apparatus—which he has borne a distinguished part in

bringing to its present high state of perfection. We confess that we sympathise rather warmly with Mr. Gamgee's enthusiasm for his principle, and with his feeling of annoyance at the not very intelligent way in which a good many surgeons seem to look at it as a mere question of a hobby—the starch bandage hobby—while they go on persistently repeating statements (*e.g.* that the presence of swelling and ecchymosis renders it dangerous to apply circular compression) which are, in fact, mere arbitrary dicta that have been completely disproved by actual experience in the hands, not only of Mr. Gamgee, but of various other distinguished surgeons. For our own part, we believe the principle of perfectly solid and firm support of affected parts, is destined to play a much wider part than hitherto, not merely in surgery, but in many affections that fall under the physician's care.

The writing of this volume is, we need hardly say, brilliantly good; Mr. Gamgee being one of the not too large number of medical writers who possess the right kind of fluency—that which goes straight towards its object, with no unnecessary stumbling, repetitions, or delays. If only our editorial lines had been cast among a whole generation of such scribes, how happy we should have been!

Pulmonary Consumption: its Nature, Varieties, and Treatment. With an Analysis of 1,000 *Cases to exemplify its Duration.* By C. J. B. WILLIAMS, M.D., F.R.S., &c. &c., and CHARLES THEODORE WILLIAMS, M.A., M.D. Oxon., F.R.C.P., Physician to the Hospital for Consumption, Brompton. London: Longmans. 8vo. pp. 402.

THIS work is one which will be regarded with mixed feelings by the profession. On the one hand, it is the fulfilment of a long-standing promise by Dr. Williams, sen., which at the time excited much expectation from the very high and deserved repute of that physician; but, on the other hand, it cannot be denied that during the long delay that has intervened, other names and fresher discoveries have come to the front, and there was somewhat less to be expected than formerly, in the way of enlightenment from a work by Dr. Williams. It must be owned, however, that, with the assistance of his son, Dr. Williams has succeeded in giving a general view of the later researches, and presenting a kind of concordance between them and his own earlier views, which will strike the reader as novel and ingenious. In the point of view in which this journal chiefly regards medical books—that of treatment—it cannot be said that any decided novelty or improvement is offered by the Drs. Williams. But as an elegantly written commentary on the progress of pathological knowledge with regard to consumption, and above all as

containing the summarised clinical history of so large a number of cases as one thousand, the book has a certain value which it is quite unnecessary for us to insist upon. Every practitioner who desires to obtain the mastery of the facts regarding phthisis, which are of the highest importance in the conduct of private practice, will do well at least to keep this book by him for occasional reference.

Of the labour which has been expended by the authors, there can be no doubt in any one's mind who has glanced through the pages of this volume. Few persons but those who have been through such a task can imagine how difficult it is to sift and condense even a comparatively small number of cases, from notes which have been hurriedly taken amidst the pressure of a great London practice; and the Messrs. Williams must have needed much courage to face the tremendous mass of material with which they had to deal. We fully recognise the great value of these researches, up to a certain point, yet we can hardly say that we feel quite as much confidence in the results they deduce from them as the authors themselves express. For instance, there is a statement (in chapter xxv.) that the duration of life in phthisis has been quadrupled since the introduction of improved modern treatment: the calculation rests on the duration as assigned by Laennec and Louis (two years), and the same as taken from the tabulated 1,000 cases of Dr. Williams, analysed by his son, which belong to a recent decennial. It seems to us that, while there is abundant direct evidence, and every kind of *à priori* probability, that the length of life in phthisis has decidedly increased of late years, any such exact calculation is practically impossible. Were Laennec and Louis now engaged in active practice, it is certain that they would understand stethoscopy so much better than it was understood in former days, that they would discover phthisis in multitudes of cases where it entirely escaped even their observation forty years ago: and for our own part, we are very disinclined to believe that the duration of cases of what would be universally called phthisis was ever so little as two years on the average.

We much regret that our space does not allow us to make anything like a full review even of that part of the work which is devoted to treatment. It is full and complete as regards the majority of the remedies which have been already well before the profession; but there are not many distinct novelties. One thing, however, we must mention. The authors distinctly admit that in a certain class of cases, where cod-liver oil has ceased to do any good, the hypophosphites produce a markedly beneficial effect. This is an important statement, seeing that the authors, previous to trying these remedies, were rather prejudiced against

them by the negative results obtained by Drs. Cotton and Quain. One omission, under the head of treatment, strikes us as a serious fault: we can find no notice of the modern use of arsenic in phthisis—a remedy of which we have yet to find the accurate range, but which is proved, on excellent evidence, to be capable of effecting surprising good in a certain number of cases.

Neumann's Text-book of Skin Diseases. Translated by ALFRED PULLAR, M.D. Edin., Physician to the East London Hospital for Children. With 67 Woodcuts. London: Hardwicke.

MORE than two years ago we noticed Dr. Neumann's admirable work in its original shape: and we are therefore absolved from the necessity of saying more than to repeat our strong recommendation of it to English readers. Of the translation by Dr. Pullar, we may say that it appears to be carefully and efficiently done, and we thank both translator and publisher sincerely for their enterprising labours.

Cancerous and other Intra-thoracic Growths: their Natural History and Diagnosis. Being the Lumleian Lectures delivered before the Royal College of Physicians of London, by JAMES RISDON BENNETT, M.D. &c. With Five Plates. London: Churchills.

THIS valuable treatise of Dr. Bennett's unfortunately deals with a subject which presents, on the side of therapeutics, almost an absolute blank. The work is of such excellence that we should be glad of an excuse to review it at length. However, we can say, very truthfully, that the pathology, clinical history, prognosis, and diagnosis of intra-thoracic growths are admirably dealt with, and that the small amount which it is possible to say respecting treatment is said as well as it can be. We strongly recommend these lectures to the profession.

Ueber die Behandlung des Fiebers. Von C. LIEBERMEISTER. Being No. 31 of Volkmann's "Sammlung Klinischer Vorträge."

THIS is an exceedingly interesting paper, more particularly in reference to recent discussions. Professor Liebermeister's name is familiar to the readers of the *Practitioner* in connection with the remarkable series of comparative experiments on treatment of typhoid fever which he was enabled to carry out during the years of his physiciancy to the General Hospital at Basle. In his present volume he tells us how he was led little by little to try the full and uncompromising use of the cold bath; and we are presented with a most remarkable series of figures respecting the effect of this change upon the hospital mortality from typhoid. Let us quote these first of all, for they are enough to rouse the most stolidly conservative minds to attention.

In the years 1843-64 the typhoid deaths were at the rate of 26·8 per cent. for the whole period. This was before any attempt at cold-water treatment had been commenced. In the next twenty months, with partial and timid (once daily) use of the cold bath, there were 1·59 deaths out of 982 cases, or at the rate of 16·2 per cent. But in the next four years and four months (up to the end of 1870), with *full* employment of the cold bath, the mortality was reduced to 7·6 per cent. for the whole period! Let us add, that there is much reason to believe that even these results of the cold-bathing treatment may be improved on: if we mistake not, Bartels of Kiel has cut down his typhoid mortality to something like 3 per cent.; and there can be no doubt that at Basle, Liebermeister had to struggle with a fever of very severe type, especially during the great epidemic which, with but small intervals, has been going on during the last seven years.

Such facts appeal to the conscience of English physicians in a very powerful manner. In the newly-aroused interest and excitement which has resulted from Dr. Wilson Fox's success in the treatment of hyperpyrexia with cold, we can strongly recommend Liebermeister's paper as a sound, sensible, and trustworthy guide. There is not a trace of puffery or egotism about it: on the contrary, the author very frankly confesses that he has only played a secondary (though from circumstances an important) part in reviving the principles for which Currie, at the end of last century, vainly endeavoured to obtain a lasting acceptance. It is, as he truly remarks, to Bartels and Jürgendsen that is really due the return to the courageous and truly philosophical practice of the half-forgotten Englishman: it is they who perceive that the cold bath in pyrexia is a remedy that must be applied with unflinching firmness and perseverance, since its partial use never does the maximum good, and occasionally leads to great mischief. We shall not go, here, into Liebermeister's explanation of the manner in which the compensating action of the heat-regulating apparatus is to be overcome, so that a real and permanent reduction of temperature may be secured. We believe that our readers will be better pleased if, in this brief notice, we quote the author's practical directions for treatment in a typical case.

As soon (say on the ninth day) as the disease is fully declared, Liebermeister commences the employment of the baths. For ordinary cases the temperature of the water is about 68° F., and the patient is kept in for ten minutes. This is repeated, not any fixed number of times, but just as often as the heat rises above 102° F.: temperature observations being made every two or three hours during day and night. Sometimes the number of baths may be six or seven in twenty-four hours, but commonly

they are much fewer. Dr. Liebermeister makes the exceedingly interesting remark that the effect of the baths, when it is decidedly good, generally manifests itself by the speedy development of a tendency to considerable periodic remissions of the fever. When such an effect is fairly visible, no supplementary treatment by drugs is needed; but there are instances in which such treatment is required. In this relation the author speaks with great confidence about quinine, but is particular in the statement that the administration must be of a definite kind. From twenty-two to thirty-seven grains of quinine (either sulphate or muriate) should be given, in pills or powder, *at once*, or at least not more than an hour should be occupied in taking the whole quantity: but then that dose will usually suffice for forty-eight hours. Digitalis is another drug which he occasionally employs in the same supplementary manner: in some very severe cases he combines its use with that of quinine: *e.g.* twelve to twenty-four grains of powdered digitalis in divided doses over twenty-four hours; while one full dose (thirty-seven grains) of quinine is given during the same period. He also occasionally employs veratrin: but we confess that, even by his account, that seems rather a risky affair.

Another point of some interest is the assertion that two or three large doses of calomel at the commencement of treatment does considerable good, though it aggravates the diarrhœa at first. We remember seeing the same statement in the report of the Basle epidemic which Liebermeister and Hagenbach published in 1868; but it struck us forcibly, on perusing the authors' able analysis of treatment, that this rested on a much more slender and doubtful foundation than their other main positions.

A variety of other considerations with regard to the treatment of typhoid, and also with regard to the extension of the cold-water treatment to other pyrexial diseases, will be found in the pamphlet. Exceedingly interesting, also, is Liebermeister's decided testimony to the good effects of quinine, in true antipyretic dose, in phthisis florida, with continued and considerable elevation of temperature. He declares that we can often lower the temperature very remarkably, and that the benefit does not stop here, for the destructive process within the lung may be greatly checked. We would conclude our present notice by the expression of a hope that, among other questions in connection with the treatment of pyrexia, *as such*, which must now command general attention, a point which both Liebermeister and Binz insist on may not be lost sight of. We refer to the necessity for giving quinine in very large doses if we would produce distinct and decided effect; for it is evident that a large amount of the incredulity that prevails on this subject has been due to the employment of perfectly insignificant doses.

Clinic of the Month.

Treatment of Ringworm.—Dr. Tilbury Fox, in the course of some observations on the mode of preventing the extension of ringworm in schools, remarks that isolation at all hazards is the first thing to do. When a number of cases occur, it is better to separate instances of very bad and extensive disease again from slight *new* cases and convalescents, for the simple reason that active treatment may at once annihilate the disease in the former, and in new cases and convalescents fresh implantations over the, in the main, healthy area of the scalp may be taking place from contact with bad cases of tinea. Dr. Fox would, of course, only adopt this plan where the cases of disease are very numerous—say thirty, forty, and fifty or more.

There are, next, certain general considerations to be taken account of. Attention to the dietary is one; for the under-fed, and ill-nourished, and ill-kept furnish the most appropriate nidus for ringworm. All deficiency in meat should be rectified, and in case the attacked or the non-infected look sickly or pallid, the allowance of meat and fresh vegetables should be increased, and supplemented by iron and cod-liver oil. So, again, the cubic space allotted to each child should be ample, ventilation free, and cleanliness enforced with exceptional strictness. One word more as regards the general health of children. If with a vigorous system of inspection in constant operation many cases rapidly appear, and, in spite of hygienic measures, spread, the children furnish clearly a very suitable soil, and the dietary of the establishment should be looked to. If ringworm becomes epidemic, with a *bad system of inspection*, it implies simply neglect, of course. Here isolation is the main thing needed to protect the healthy, and not feeding up.

In all cases in schools the hair should be cut short, close to the scalp. Recent cases are at once checked and often cured by simple blistering. The disease, not having reached the bottom of the hair follicles, is at once accessible to remedies. The use of strong acetic acid is perhaps as good as the blistering fluid. If the case is not very recent, epilation of diseased hairs, after the Paris fashion, should be practised. It is generally "too much

trouble to do this." Dr. Tilbury Fox next enforces the use, every few days, of Coster's paste to the extent of some five or six applications, and the subsequent use, night and morning, of some parasiticide ointment, diluted citrine ointment, or sulphur, creasote, and ammonio-chloride of mercury. The head should be washed each day and well greased. The latter prevents the escape and dissemination of fungus germs. If preferred, the head may be kept soaked in diluted sulphurous acid; of course a proper cap of silk should be worn.

It is scarcely necessary to do more than refer to the necessity of thoroughly cleansing the brushes, combs, and towels of the diseased, and seeing that these are not used in common by the healthy and the infected. Towels should be well boiled. To one novel point Dr. Fox directs special attention: it is the disinfection of the air of the wards in which a large number of cases of ringworm have been. His recent observations show that the fungus germs are floating in the air; and though Dr. Fox had until lately no experience to go upon, because the observation is as yet a novel one, yet he has no hesitation in saying that the air of the wards should be disinfected by burning sulphur, if, after complete isolation has been practised where many cases of ringworm have occurred, other instances of disease still continue to appear amongst the previously healthy. (*Lancet*, Jan. 6, 1872.)

The Treatment of Asthma.—Dr. John C. Thorowgood observes that experiments made by Paul Bert, Traube, and others, have shown that one result of irritation of the pneumogastric nerve is to cause contraction of the lungs and arrest of respiration; this arrest being more easily produced during expiration than during inspiration.

The lungs themselves contract just as does a sponge when squeezed in the hand; and so long as this contraction continues, so long does the paroxysm of asthma and difficult breathing exist.

Prolonged expiratory efforts, as by a violent burst of coughing or a fit of laughter, are very apt to determine a fit of spasmodic asthma in one predisposed thereto, illustrating the fact shown by the experiments above alluded to, that arrest of respiration from closure of the lungs is more easily produced during expiration than during inspiration.

Now, the pneumogastric nerve, as its name implies, supplies nervous filaments not only to the lungs, but also to the upper part of the alimentary canal—viz. the pharynx, œsophagus, and stomach; and hence any irritation of these parts may show its effects in the form of contracted lungs and asthmatic paroxysms.

These are matters tolerably well known and understood, and

yet in the practical treatment of such a complaint as spasmodic asthma we seem hardly to get that help from this physiological and anatomical knowledge to which we are fairly entitled.

Efficiently to treat spasmodic asthma in its various forms, we must recollect that we are dealing with a pulmonary neurosis, and endeavour to allay any irritation of the pneumogastric nerve as much as lies in our power.

Commonly we find in a paroxysm of pure spasmodic asthma that medication of those filaments of the pneumogastric that go direct to the air tubes and lungs by means of certain fumes and vapours, as, for example, burning nitre paper, or the smoke of stramonium or tobacco, is sufficient to relieve the spasm and cause relaxation of the air tubes; but these are at best but temporary expedients, and naturally patients and physicians seek after some means of cure likely to be more radical and permanent in its effects.

So far as the experience of Dr. Thorowgood goes, this may be found often in treatment carefully directed to the stomach and liver in the first instance; and, secondly, in the use of certain tonics that have in some way or other a permanently curative power over neuroses of the lungs and heart.

Much stress is very properly laid in books on asthma on the patient's diet. He must not dine late, and certainly must never indulge in supper. Sound and sensible as this rule is, yet perhaps the practice of eating nothing after midday is carrying things a little too far in most cases. A state of exhaustion may be induced, which always increases any kind of nervous irritability; and, further than this, the long-continued innutrition may, later in life, lead to actual structural change of a degenerative kind in the lung tissue.

Dr. Thorowgood finds in practice that a small sandwich of bread and meat, or sometimes a cup of bread and milk, is very grateful to a hungry asthmatic in the evening, and in no way injurious.

The medicines that have more or less credit in the cure of asthma are almost "legion," the reason being that some fit, as it were, one end of the pneumogastric, some another. Thus, bismuth and hydrocyanic acid are of great value when the neurosis is of gastric origin. Carlsbad salt, nitric acid, and at times small doses of mercury, are all unmistakeably curative when the hepatic system requires relief.

Other remedies, such as ipecacuanha, belladonna, nux vomica, will cover a wider range of symptoms dependent on pneumogastric disturbance, while, if we have reason to suspect a gouty or rheumatic diathesis as the root of the trouble, alkalies with iodide of potassium, sulphur, and arsenic will be the remedies indicated. While, then, we certainly have no "specific" for the cure of asthma, we may, by considering the complaint in its wide range, as

a neurosis of the pneumogastric, get some very satisfactory results from treatment. (*Medical Press and Circular*, Jan. 10, 1872.)

Treatment of Hay Fever.—In some clinical remarks on this subject, Dr. A. T. H. Waters, of Liverpool, observes that he has not much confidence in medicines as curative of the actual symptoms of the disease; but relief is experienced from the remedies which are often found useful in asthma, and in ordinary catarrhal conditions. In the early stages, when the lacrymation, sneezing, and running from the nose are severe, he has found carbonate of ammonia, given in five-grain doses, and frequently repeated, very useful; but if the disease continue, and the symptoms of depression, languor, and debility come on, recourse should be had to the most powerful tonics. He believes a combination of iron, quinine, and strychnine will generally be found beneficial. There are some matters of detail which must be, of course, looked to, such as the existence of gout or rheumatic symptoms, or disturbance of the organs of digestion, on which it is not necessary here to dilate. The main point to be borne in mind is, that the affection is essentially one of a weak, impressible nervous system, and remedies must be given accordingly. Arsenic is another medicine which may be employed, and in some cases it has answered well. It may be given with quinine and opium, which latter some people find useful, especially when there are asthmatic symptoms; but its tendency to impair the digestion is an objection to its use. In addition, the tepid or cold bath should be used. The diet should be liberal, with a moderate amount of stimulants. Some insist on the importance of fortifying the system against attacks; and no doubt it is a good plan to persevere steadily during the whole year with measures which tend to keep up the tone of the nervous system. But that people may succumb to an attack when in the very best health is unfortunately too true. Dr. Waters is acquainted at least with one instance during the present year where the patient, just before the attack, was in unusually good health, and yet he has suffered much more severely than on any former occasion. (*British Medical Journal*, Jan. 6, 1872.)

Isolating Dressing of Wounds.—In an article in the last number of the *Gazette Hebdomadaire*, M. Viennois gives an interesting account of the "Isolating Dressing of Wounds," as pursued by M. Ollier, of Lyons. He observes that among the various modes of effecting this manner of dressing, of late years, that of Lister has excited most attention; but his is so long and complicated that the omission of some detail may easily prevent its succeeding. For this reason M. Ollier has, during the last two years, treated wounds by means of *oil baths*, and, where these could not be applied, by keeping the

wound and the limb surrounded by dressings constantly soaked in oil—in fact, a continuous oily irrigation. For the continuous water baths employed by Langenbeck, Valette, and others, M. Ollier believes that oil constitutes a preferable material, as, being lighter than the fluid products of the wound, all putrefied or putrescent matters sink through it to the bottom of the vessel. They no longer remain in contact with the wound, and, by traversing a carbolized layer of the oil, become disinfected and innocuous during their passage. However abundant such products are, they are removed from the wound by means of the oil, which also forms an efficient protection against the access of the air to the wound. Moreover, the oil is not, like water, absorbable by the wound, and thus isolates it without furnishing it with any septic elements. It is sufficiently transparent to render it unnecessary to remove the limb from the bath in order to watch the progress of the wound. The oil may be rendered antiseptic by adding about 50 per cent. of phenic acid. After trying various forms of apparatus, M. Ollier now uses zinc vessels approaching in shape to the limbs which are to be immersed in them during the period of treatment. For amputations of the arm or leg he employs a yet simpler plan—taking a pig's bladder of sufficient capacity to embrace the stump, and, having filled it with oil, fixing it above the knee or above the shoulder, as the case may be. The stump is thus kept in a continuous bath of oil, which furnishes it with a soft cushion, and may require renewal every three or four days, according to whether the adjustment becomes disturbed or not. When the bath cannot be applied, a layer first of charpie and then of wadding is wound round the limb and thoroughly saturated with oil, which is also kept frequently, or even continuously, applied. Although from this mode of dressing M. Ollier has derived excellent results, he has nevertheless given a full trial to M. Alphonse Guérin's wadding dressing, somewhat modified, which is cheaper and requires less minute attention. The modification consists in adding a silicated bandage over the cotton, in order to prevent motion of the wounded region, this being a powerful antiphlogistic means. He also soaks the first layers of cotton that are applied with carbolized oil, especially when the condition of the tissues causes it to be feared that there may be partial mortification and abundant putrescent secretions. And as, by imbibition of the oil, the cotton loses some of its elasticity, he places over it thick layers of dry cotton, sometimes alternating these with carbolized cotton. The whole is enclosed in the silicated bandage, which is from time to time varnished over with silicate. M. A. Guérin makes no attempt at securing union by the first intention, but M. Ollier frequently effects this by the combination of the cotton and

silicate. Of course this is not attempted when the condition of the wound precludes it, as in secondary amputations, practised amidst more or less infiltrated tissues, which are inevitably destined to suppurate; but when amputation has been performed in healthy tissues and on young subjects, and especially when minor amputations or disarticulations are practised, or when the removal of tissues renders a wound favourable to union, the attempt should be made. It would certainly not be prudent to count upon complete immediate union after amputations of the leg or the thigh in large hospitals, but in those of the fore-arm, supramalleolar of the leg, the fingers, &c., such union may be often obtained. In all cases a safety-valve is left by introducing into the wound a drain or small tent. M. Viennois refers to numerous cases in which the practice has succeeded in M. Ollier's hands during several years, and in his own in the late war. (*Medical Times and Gazette*, Dec. 30, 1871.)

On Torsion and on the Dressing of Wounds.—Mr. Callender gives a clinical lecture on these subjects, and states that seven amputations have been performed this year at St. Bartholomew's, in all of which torsion was employed, and all of which terminated successfully. Three of the amputations were of the thigh, three of the leg, and one was of the fore-arm: the ages of the patients varied from nine to forty years. Torsion, he remarks, ensures the laceration of two coats of the vessel and the formation of a coagulum, whilst (in this respect unlike the ligature) no foreign body is left attached to the artery, to be separated from it eventually by ulceration through the outer tunic. The twist of the artery, the tearing of the inner and middle coats, and the formation of a clot—these three provide for the permanent occlusion of the vessel. There is no record, where the operation has been properly practised, of any sloughing of the twisted end, or of any abscess along the track of the vessel; and whilst the presence of a foreign body in the wound is avoided, the patient escapes the anxiety which the prospect of the removal of ligatures entails. To add one other and a strong argument in favour of torsion, it is free from all risk of that secondary bleeding which is sometimes associated with the separation of a ligature. In regard to dressing, Mr. Callender, after bringing the edges of the wound close by silver sutures, covers the stump with lint, once folded, and previously dipped in carbolic oil of the strength of one in thirty. Pads of lint or cotton wool are then applied above and below, and the whole dressing is secured by a few turns of a bandage. (*British Med. Journal*, Jan. 20, 1872.)

Excision of the Head and Neck of the Femur in of Hip-Joint Disease.—Dr. Morton, of Glasgow, has g clinical lecture on this subject, in which he calls atten the mortality that has commonly attended this operatio in the hands of the most eminent surgeons, a mortality he thinks judicious treatment may diminish. He gi details of several cases in which he performed excisio where he gradually became convinced that the little p suffered much, simply from their confinement to bed, thc doubt the profuse discharge materially aided in pr exhaustion. Influenced by this view, he applied a cation of Sayre's splint, and he speedily had the plea seeing ten walking about the wards on crutches, and pr to be successful cases. Dr. Morton thinks the gener authors are too prone to regard excision of the neck femur as a last resource, and as an operation that should performed until all other chances of repair, or even arres disease, have been exhausted; which too often practicall until the patient is in such a condition as scarcely to aff barest chance of a good result. (*British Medical Journa* 20, 1872.)

Extracts from British and Foreign Journals.

Thapsia as a Rubefacient and Revulsive.—The particular species of Thapsia (one of the divisions of the Umbelliferæ) is not named by Dr. Armand, in his paper on this subject; but it is sold by the house of Le Perdriel Reboulleau. The action of the plant is very persistent, in this respect differing from the ordinary rubefacients. It may therefore be regarded not merely as an accessory therapeutic agent, but as an independent remedy of great advantage in many affections of the vascular and nervous systems associated with painful hyperæsthesia. It is adapted for various diseases of the chest, as for inflammatory affections of the mucous membrane of the respiratory organs, accompanied by pain and oppression in the breathing. It removes hyperæsthesia and pain in a very noticeable manner. Dr. Armand found it of great service in inflammatory diseases of the larynx, where there was a considerable amount of piping and whistling in the respiration and great sensitiveness of the surface. It can be applied both to adults and to children. He found it equally valuable in cases of angina faucium, where there was great hyperæmia of the mucous membrane with severe pain and difficulty in swallowing. The application of the Thapsia to the upper region of the neck in front diminished the progress of the exudation, removed the hyperæmic condition, and limited the excessive secretion, especially if combined with rest, careful diet, and the avoidance of external injurious influences. (*Allgemeine Wiener medizin. Zeitung*, No. 38, 1871.)

A Remedy for Hæmoptysis.—Dr. Holden says, in the *Medical Record*, that he desires to call the attention of the profession to a method of treatment of hæmoptysis, which, while most simple and efficacious, he has not seen described by any, viz. the throwing of the atomized vapour of a saturated solution of gallic acid directly into the mouth and throat. He has repeatedly found the most gratifying success follow at once, even in cases of profuse hæmorrhage. Unlike other styptics thus administered, it quiets the spasmodic cough, which seems the direct result of the presence of the blood, requires but a moment to prepare, and, aside from its efficacy, it inspires immediately the confidence of the patient. For about two years he has

adopted this method, and has been surprised that no similar experience has found its way into the medical journals. His habit has been to have an atomizer and bottle of gallic acid always at hand, and, when summoned hastily, to mix the acid in a tumbler of cold water, and use even without waiting for the excess of acid to subside. It has proved successful in several cases where the blood was streaming from the mouth with every expiration. (*Med. and Surg. Reporter*, No. 758.)

Modification of the Ordinary Test for the Biliary Acids.—M. Strassburg, of Bremen, suggests a modification of Pettenkofer's test for the presence of the biliary acids in urine, which promises to be serviceable clinically, and according to his statements is of extreme delicacy, enabling a trace not exceeding $\frac{3}{100000}$ths to be readily detected. He dips a slip of filtering paper into the urine suspected to contain the biliary acids, and to which a little cane-sugar has been previously added. The slip is withdrawn and dried; a drop or two of pure concentrated sulphuric acid is now applied to it by means of a glass rod. On holding the paper up to a strong light, a beautiful violet colour makes its appearance. (*Pflüger's Archiv für gesammte Physiologie*, Heft x. and xi. 1871.)

Membranous Enteritis.—Dr. Da Costa, of the Pennsylvania Hospital, contributes a valuable essay on this subject to the "American Journal of Medical Sciences." The malady, he says, in its essential features consists of a painful and obstinate affection of the intestines, in which membranes or skins are voided. It has received various names, as diarrhœa, tuberculosis, follicular colonic dyspepsia, pellicular enteritis, &c. There may be but one attack, but usually one paroxysm is followed after an interval of months by another; and at times the disease may become almost continuous. A week is, in his experience, the shortest time for an attack to last, and distension, sense of burning colicky pains, and at times a sluggish state of the bowels, precede the discharge. After this has taken place the abdominal soreness lessens and the patient is well, though apt to have a flabby coated tongue, and to remain dyspeptic and weak. Febrile symptoms are not well marked, the skin being cool and the hands moist and clammy. Palpitation of the abdominal aorta is often observed. Between the attacks the bowels are irregular, and tenesmus is often complained of. The patient suffers from sore mouth, boils or carbuncles, and his bladder is often irritable, large quantities of mucus being passed. Various symptoms referable to the nervous system are present, as headache, impairment of memory, defects or disorders of the special senses, and hypochondriasis. In females the uterine

functions are often irregularly performed. The concretions passed by stool consist of membranous shreds or tubes, or sometimes of perfect casts of the bowel. One of Dr. Da Costa's cases discharged a tube of a foot in length, and a complete mould of the intestine. More commonly they are shreddy, and either whitish and firm in consistence or of a clear jelly-like aspect. When examined microscopically they present a transparent, amorphous, basement substance, here and there indistinctly fibrillated, and having imbedded in it granules, free nuclei, and small, shrivelled, irregular, and rather granular cells. There are not many well-marked epithelial cells, and white, or elastic fibrous tissue or elongated fibre cells, he has not met with, except occasionally a few of the latter. Careful chemical examination of the casts by Dr. Horace Hare showed that in their characters and reactions they were chiefly composed of mucus, a little albumen being occasionally present, but no trace of fibrin. The prognosis, except in acute cases, is not favourable. The treatment may be divided into that which should be pursued during the attack, and that to be adopted with a view of preventing its recurrence. As regards the former, Dr. Da Costa almost invariably has recourse to opiates, and he has often used morphia hypodermically. Further, rest in bed, the application of water to the abdomen, slight purgatives, and an easily digested diet are to be prescribed. As regards the latter, he pays great attention to the diet, ordering eggs, milk, bread, and solid food rather than liquid. The action of the skin should be promoted by baths, followed by systematic friction. Occasional counter-irritation over the abdomen appears to be of some benefit. Daily moderate exercise should be recommended, particularly in cool weather. The patient should be directed to abstain from using purgatives, or take only the mildest forms, if purgatives are absolutely indicated. With regard to medicines given with a view to prevent the formation of the membrane, Dr. Da Costa has seen the best results from a steady course of iron, particularly of the perchloride. Cod-liver oil may aid in some cases, but is not generally well borne. Acids sometimes appear beneficial. He has not found any benefit from copaiba, from arsenic, or from pitch pills. Bismuth is sometimes of benefit, but it is not to be depended upon; nor is turpentine, nor are the alkalies; opium will for a time prevent the formation of the substance. Whitehead recommends the protracted employment of bromide of potassium, and Habershon of the nitromuriatic acid, with henbane and vegetable infusions. Dr. Da Costa is still engaged in investigating the treatment by means of the electro-magnetic battery which has been so enthusiastically praised by Cumming, but has not hitherto seen any advantage from its use. (*Lea's American Journal of Med. Sciences*, Oct. 1871.)

Use of Nux Vomica in certain Neuroses of Organic Life.—M. Brugnoli has employed nux vomica successfully in the nervous movements of pregnancy, gastralgia, dyspepsia, hypochondriasis, nervous palpitations of the heart, nervous and periodic cough, asthma, and finally in albuminuria. This remedy acts either on the pneumogastric, or on the great sympathetic, or on the spinal cord. He records a case of a lady affected with severe cough recurring every evening and lasting throughout the night, who was cured in two days by the use of nux vomica. Another patient was affected every evening with violent cough accompanied by catarrhal expectoration, and was also cured in two days by the use of the alcoholic extract of nux vomica mixed with the extract of gentian. Cough may always be allayed by this means, whether it be caused by bronchitis, by pneumonia, by pulmonary phthisis, or by emphysema. It proves a useful remedy also in cases of cardiac pulsations, and in irregular or too frequent action of the heart. In albuminuria, M. Brugnoli thinks the administration of nux vomica has retarded its progress to some extent, especially in cases of scarlatinal albuminuria. (*Lyon Médical et Journal de Médecine*, Nov. 1871.)

Cundurango a new Alterative.—The cundurango or condor vine, a name derived from the two Quichua words *cundar* and *ango*, is a climbing vine resembling much in its habits the grape-vine of our own forests. Springing from the seed generally at an altitude of from 4,000 to 5,000 feet, and on the western exposure of the Andes, after growing to the height of three or more feet, a slim little stalk, it reaches out and finds some strong arm to lean upon; it prefers the tallest trees, and clings closely to their trunks, winding firmly around them, following the growth to the extremity of their limbs, and sometimes, for want of other support, returning upon itself, weaving a curious rope of cundurango strands. Cundurango vines are usually from one to three inches in diameter. They are quite flexible when fresh, but when dry very brittle; the bark, which is the part containing most of the medicinal properties, is, externally, of a greenish-grey colour, and has numerous small warty excrescences. When freshly cut, it gives an abundant, milky, viscous juice or sap; it is somewhat fibrous, and the cut portion of the dry bark presents small yellowish dots, easily distinguishable. The odour is balsamic, the flavour peculiar and decidedly an aromatic bitter. The vine, in many particulars, evinces its relationship to the Asclepiadaceæ family — approaching the genus *Periploca*, or, according to the classification of Linnæus, the *Pentandria digynia*. These vines are found at the same altitude and on the same exposure of the mountains in nearly

all the province of Loja, but those possessing the most powerful medicinal qualities are probably most abundant in the mountains of the cantons of Loja, Calvas, and Paltas, extending south towards the line between Ecuador and Peru. Judging from his own observation and the statements of the natives of that region, Dr. Keene believes the cundurango, or that which he has described, and which has given the wonderful effects upon cancer already known to the world, is not abundant. Of the value of the cundurango as a remedial agent Dr. Keene fully assured himself while in the interior of the country, both by personal observation in some twenty cases of chronic diseases of the blood, and from natives who had used it, particularly from Señor Don Manuel Eguiguren, Governor of the Province of Loja. The cases of cure of chronic ulcers by the administration of cundurango which have come under his immediate attention, and which he testifies to and speaks of with such genuine enthusiasm, are truly marvellous, and entirely set at rest any doubts he may have entertained, and coupled with evidence presented from Quito, from Guayaquil, and all through the interior, establish beyond a question the value and efficacy of this newly-discovered remedy as an alterative and purifier of the blood. (*Pharmaceutical Journal*, Nov. 18, 1871.)

New Sedative.—Professor Deneffe, of Ghent, states that for more than two years he has employed a combination of camphor and bromine, which he thinks is entitled to general attention. The celebrated chemist, Laurent, showed that bromine will easily unite with camphor at the ordinary temperature, but that the product is slowly decomposed by exposure to the air. M. Swartz, Professor of Chemistry at Ghent, has shown that this body heated in a closed vessel is resolved into hydrobromic acid and a crystallized compound, which is monobromized camphor (*camphor monobromé*), a body differing only from ordinary camphor by the substitution of an atom of bromine for an atom of hydrogen. It is a perfectly crystallized substance, fusible at 76° C. and boiling at 274°. At Professor Swartz's request, M. Deneffe has investigated the therapeutical properties of this body, and has found it to be an excellent sedative for the nervous system. He intends shortly to publish his cases in proof of this, and in the present communication furnishes one of these, in which excitement of the nervous system passing into true delirium tremens was effectually relieved. He prescribed it in the form of pills, seventy grains being made into thirty pills, of which one was given every hour until twenty had been taken. For three days longer from forty-five to sixty grains were given in the twenty-four hours, the quantity being diminished from forty-five to thirty

grains daily for a week longer. The recovery was progressive and stable. (*Med. Times and Gazette*, Dec. 2, 1871.)

Starch as a Vehicle for Injections.—Dr. Bixby presented a new vehicle for the consideration of the American (Boston) Gynæcological Society, for vaginal injections, namely, common starch. The idea was first suggested to him by the extensive use he saw made of this material in Paris, by Professor Hardy, the eminent French dermatologist, in the treatment of skin affections, especially in children, in the form of baths, poultices, &c. Dr. Bixby considered that it possessed other important qualifications than those of cleaning, soothing, and healing; namely, that it was always at hand, was cheap, and within the reach of the humblest, when gum arabic, linseed, or glue, could not, from the expense or other reasons, be obtained or employed for any length of time. His formula was the following:—To one half-pint of thin boiled starch add one half-teaspoonful of pulverized chlorate of potash, and three or four teaspoonfuls of glycerine. Use by injection every night upon retiring; twice a day in urgent cases. Dr. Bixby stated further, in regard to starch, that he used it in nasal douches, injections of the ear or bladder, and in chronic affections of the rectum. Sulphate of zinc, acetate of lead, or any other astringent might also be used. (*Journal of the Gynæcological Society of Boston*, No. 5, vol. v., Nov. 1871.)

Puncture of the Intestine in Tympanitis.—In the *séance* of the Académie de Médecine, held on the 14th November, M. Piorry read the second part of his memoir on the practice of puncture in gastro-intestinal pneumatosis, and gives his conclusions in the following terms:—Puncture of the abdomen practised with the intention of evacuating the gases contained in the stomach and intestines is a proceeding fraught with extreme danger. It should never be resorted to before the anatomical and physiological causes of the accumulation of the gases in the intestines have been ascertained as accurately as possible, and not until every other means of remedying the condition has been tried in vain. He recommends, before the introduction of this mode of treatment into practice, that further experiments should be made and much further information gained, in regard to the plan best adapted to prevent the escape of gases and liquids into the peritoneum, as well as to determine the point where the puncture can be made with the greatest facility. (*Archives générales de Médecine*, December 1871.)

Treatment of Scurvy.—Drs. Ch. Lasègue and A. Legroux give, in recent numbers of the *Archives générales de Médecine*, full

details of an epidemic of scurvy that visited the prisons of the Seine and the Hôpital de la Pitié in September 1870, during the siege. Eighty-three cases fell under their observation. The symptoms do not appear to have presented any unusual features. It is a curious fact, however, that the patients were all males. In the prison of St. Lazare, in which females are confined, not a single case occurred, though the conditions in regard to privation of food were not different. Gingivitis proved a troublesome complication, but was not quite so serious as has been noticed in other epidemics. The best applications were found to be caustics, —chloride of zinc, sulphate of zinc, iodine, perchloride of iron— sufficiently diluted to act as astringents, and freely applied with a wad of tow or charpie by the surgeon in attendance. They found great advantage result from the application of a saturated solution of hydrochlorate of ammonia to the skin at the points corresponding to the subcutaneous effusions, absorption being favoured and pain diminished. Baths were employed in almost every case, the mode of administration being as follows:—The skin was first rubbed with black soap, and two alkaline baths were then directed to be taken, after which the patients were prescribed baths containing sulphate of zinc or of copper. In regard to regimen, fresh vegetables were given with, as far as circumstances would permit, fresh meat and lemons; habitual constipation was combated by repeated laxatives. The most uncertain part of the treatment they found to consist in the local accidents of the third period, when partial sclerosis of a member takes the place of suffusions. None of the plans they tried proved of any service. They lost very few cases. (*Archives générales de Médecine*, Dec. 1871.)

Oxalate of Potash in Peritonitis.—Two cases of peritonitis with purulent effusion, the pus discharging itself by the umbilicus, have been reported this year to the Medico-Chirurgical Society of Liége. In the first case, observed by M. Gluge, the peritonitis succeeded a typhoid fever; in the second case the peritonitis occurred in a puerperal patient, and it was stated by M. Suyers, who was the medical attendant, that a month after the commencement of the disease a projection was observed at the umbilicus, which gradually increased and ultimately burst, discharging three or four quarts of sero-purulent fluid. A fistulous track remained for a long time, but at length recovery occurred, and the patient has since been twice *enceinte* without ill consequences. Amongst the measures adopted by M. Suyers in the acute stage of the peritonitis, concurrently with the application of leeches and frictions with a combination of extract of belladonna and mercurial ointment, was the administration of oxalate of potash, already recommended in the same affection by Welti

and Von Brenner de Ischl. Von Brenner had to treat a young woman who, three days after her first confinement, suffered from shivering, sudden cessation of the lochial discharge, pain in the hypogastric region, greatly increased by the slightest pressure, tympanitis, and violent febrile symptoms. He prescribed small doses of oxalate of potash in mucilage, to be taken every hour; and the best results followed, the patient being perfectly restored to health in a day or two. A second instance is recorded as occurring in Von Brenner's practice. A multipara was attacked with free uterine hæmorrhage, which terminated in the discharge of a mole: eight days subsequently intense metro-peritonitis declared itself. Venesection and the application of leeches to the belly effected no improvement. When Brenner was called in the pain was extremely severe; the least movement caused a tendency to syncope. Oxalate of potash was administered as above, and the symptoms speedily cleared away. In M. Suyers' patient the oxalate of potash is stated to have dissipated the acute symptoms, though it was incapable of effecting the removal of the purulent effusion existing in the abdominal cavity. (*Journal de Médecine et de Chirurgie*, vol. xlii. December 1871.)

Hypophosphites in the Toothache of Pregnancy.—Dr. Sterling believes that the toothache so common in pregnancy results from the abstraction from the blood of the salts requisite for the construction of the bones of the fœtus; and accordingly recommends 1½ grain of hypophosphite of lime, soda, potash, and manganese daily. (*American Journal*, New Series, cxiii.)

Quinine and Digitalis in Hemicrania.—M. Débout has obtained favourable results from the combination of quinine with digitalis in the treatment of migraine. The formula he employs is sulphate of quinine forty-six grains, powdered digitalis twenty-two grains, of syrup q. s., to be made into thirty pills, of which one is to be taken every evening. M. Gauchet states that he also has had frequent opportunities of treating hemicrania in this manner. In old-standing cases it is occasionally ineffectual. He obtained the best results in those cases where the attacks occurred at the menstrual periods. (*Journal de Médecine*, 1871.)

Treatment of Acute Articular Rheumatism with Ice.—Prof. Esmarch remarks, that although it is generally known that the augmentation of temperature is one of the most dangerous symptoms of all febrile processes, yet the application of the most powerful means of lowering it, namely, the constant and renewed application of cold, is met, both on the part of the public and in great part also of the profession, by the fear of rheumatism. Prof. Esmarch already called attention in 1861 to this mode of

treatment in cases of acute rheumatism; and during the last winter four cases have been treated by him with ice. The first was an officer with rheumatism in the joints of his feet and legs. Ice was immediately applied locally. On the following day the upper extremities were affected; the heart-sounds were weak, the first being accompanied by a slight bruit. Ice was applied to all the affected joints; and on the fourth day the heart-sounds became clear, and on the sixth the patient was well. The other cases were equally successful. The results as compared with the application of heat, surrounding with wool, and blisters, were most striking, both as regards the shortening of the attack and the diminution in the amount of pain experienced. Waldeck objects to Prof. Esmarch's plan, that although the various plans of water cure have familiarized the public more or less with the application of cold in febrile diseases, yet that very unpleasant comments might still be made when sudden death resulted from brain affection (as not unfrequently occurs) in a case of rheumatism to which ice had been applied. He starts the question, also, whether ice could be applied in cases of gout. Prof. Esmarch states in reply that he has had little experience of true gout, but has, nevertheless, applied ice in such cases with advantage. In regard to the cases where the brain is affected in rheumatism, the cases of phrenopathia rheumatica, or apparent meningitis, he believes they are occasioned, as in typhus, by the extremely elevated temperature of the body, and the application of ice is clearly indicated. In Kiel such a rheumatic case was brought to the clinic, with the most violent delirium, and a temperature of 43° C. (107° F.). He was at once placed in cold water, and recovered. In cases of inflamed joints, the application of cold should be commenced at an early period. In reply to a question by Kauffmann, as to how long the ice should be applied, Prof. Esmarch stated that it should be continued till the local affection has disappeared. He draws a distinction between the application of wet clothes and ice; the former, as adopted by Priessnitz, leads to the alternate application of heat and cold, which he thinks injurious, and may heighten the rheumatic inflammation, whilst the ice is uniform in its action. (*Aerztliches Literaturblatt*, No. 12, 1871.)

Notes and Queries.

We have received two or three private communications respecting the case of Christiana Edmunds, the Brighton poisoner, which are susceptible of being turned to practical purpose, as it seems to us, even in a therapeutical journal; and we therefore make no apology for diverging from the usual plan of this department of the *Practitioner*, in order to convey, while the impression of the affair is recent, our opinion on this subject. Our correspondents suggest that the case of Christiana Edmunds indicates some grave considerations on the apparent shortcomings of practical medicine in similar instances. They say—if it be true that this unhappy woman belonged to a family so grievously smitten with the worst forms of nervous disease during two or three generations, was there no help possible? was there no duty incumbent on the medical advisers of the family, to inculcate suitable prophylactic measures, whereby she might have been so protected from herself that the shocking catastrophe that has occurred might have been averted?

Now, first as to the matter of fact. There cannot be a doubt, we think, that the family history of Christiana Edmunds had all the elements which might conduct a medical adviser to a prognosis, not merely speculative but confident, that the outbreak of serious mental mischief in her could only be a question of time. We need not recapitulate the dismal details of the illnesses of her nearest relatives which the evidence given on the trial, and subsequently, has made so sadly public. There is no reason, however, to think that these historical facts had ever been formally laid before a medical adviser, with a view to obtaining advice as to the special precautions which might be applicable to her moral and physical culture. And it is upon this subject that we desire to say a few words; for it is evident that this case will give rise to most serious discussions, and that the grave medico-legal questions which it opens to view will

compel the attention of all intelligent persons, outside as well as within the medical profession.

The researches of various alienist physicians, in recent years, have brought into great prominence the facts of hereditary transmission of neurotic diseases. The present writer, on a recent occasion,[1] summed up the general result of these researches to the following purpose:—That there are two varieties, or degrees, in which the hereditary neurotic temperament is observed to be existent in particular families, the Active and the Dormant. In the latter, there is merely noticed the occasional occurrence of nervous disease—insanity, neuralgia, epilepsy, &c.—at long intervals; perhaps only one case of any such disease being noticed in a whole generation. But in the Active form of the hereditary neurosis, where we are able to apply sufficient care in making inquiries, we discover the fact that many individuals, in successive generations, have been affected with serious forms of nervous disease; one form (such as insanity) usually predominating, but various others also occurring. Unfortunately, the whole traditions of society, especially in the superior classes, lead to the suppression of such facts instead of their frank revelation to the medical advisers of the affected families, and it needs greater keenness and persistence in seeking for information than medical men always possess, to arrive at a true view of the family constitution. Supposing that a really complete description of all such facts in the Edmunds family history had been laid before the medical adviser, whoever he was, that attended Christiana on the first occasion of her being attacked with hysterical symptoms—or rather, supposing such facts to be communicated to the medical attendant of any similar young hysterical girl, in the *present* state of scientific knowledge on these subjects—might not a most important prognosis, for future guidance, be made? It might surely be said, with melancholy confidence, "This girl, even under the happiest circumstances, will have to run the gravest mental and moral risks. If she were happily married to a healthy person, without too much delay, all might be well with herself, though there would doubtless be considerable risk of her children inheriting her family peculiarities. But if she be condemned by fate to remain single, no care can possibly be too great if she is to avoid a mental overthrow. Suppressed sexual instinct, suppressed desire of maternity, consciousness that her life fails of the chief end of woman's life,—all these may too probably work like poison on a nervous system so ill-balanced in original constitution. The only hope for her, then, if she must remain single, is in a training specially devised to direct her into a course of well-balanced moral, intel-

[1] *Vide* "Journal of Mental Science," January 1872.

lectual, and physical activity." It may be said, that this is an awful message to deliver to a parent trembling with anxiety for a child, and that it may seem to impose a difficult or even impossible task on that parent. But we cannot hold that these considerations, painful though they are, should deter a medical adviser from discharging his conscience. Who knows what might have been made of Christiana Edmunds? She had abundant talents, as is plain from the miserable results of its misguided activity: and it is possible that she might have risen to eminence in a literary career. She had powers of organization that might have fitted her for many important business occupations. And she had probably—distorted and repulsive as her actual manifestations of it were—great power of enduring and patient affection. It seems to us a miserable and vulgar error to overlook the good that there is in such natures. If Medicine is ever to rise to those heights which her greatest minds have dreamed of, surely one of her noblest aims will be to vanquish the fate that now seems to impend, with inevitable doom, over many of the unhappy descendants of our hereditary madmen.

And this is the answer we give to the not unnaturally alarmed queries of those who ask us, "When is this sort of thing to stop, this reprieving of criminals, on comparatively slight evidence of personal insanity, which happens to be supplemented with a strong history of family derangement?" We say, it is useless for society to shut its eyes to the tremendous facts of inherited neurotic tendencies. Let the fathers and mothers in families thus affected be encouraged honestly to confide the facts to their medical advisers, instead of studiously concealing them, as they at present usually do, until some catastrophe happens. We doctors *might* be able to give advice respecting educational and other precautions, that would avert such mischief. But it is too bad, when a hideous catastrophe like the Brighton case has happened, to encourage medical witnesses to express their opinions on such a series of facts, and then revile them for stating some of the plainest and most assured truths in the whole compass of our knowledge respecting mental diseases. Let the lawyers hang whom they please, or spare whom they please, in Heaven's name; but it is rather too much to ask us doctors to falsify the whole experience of our lives by saying that a woman born of such a family as Christiana Edmunds', living disappointed of marriage up to near the most critical period of sexual life, is either physically or morally to be judged upon the standard of ordinary criminals. If the public wishes to prevent the grotesquely horrible calamity which the *Spectator* foreshadows—the formation of an aristocracy of the children of mad-people, privileged to commit crime

with impunity, and availing itself of that privilege—let it lend its powerful influence to encourage perfect openness and fair dealing from the public to the profession, so that the latter may be enabled *to strike at the root,* and by their scientific counsel, so to direct the feeding and the education (mental and physical) of children who are as yet only *endangered* by their inheritance, that new generations may at last be rearedwho shall be free from the curse of the neurotic descent.—[ED. PRACTITIONER.]

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[1] Any of the foreign works may be procured on application to Messrs. Dulau, of Soho Square, W.C.; or Williams & Norgate, of Henrietta Street, Covent Garden, W.C.

THE PRACTITIONER.

MARCH, 1872.

Original Communications.

PURPURIC SPOTS PRODUCED BY IODIDE OF POTASSIUM AND IODIDE OF AMMONIUM, BUT NOT BY IODIDE OF SODIUM.

BY SYDNEY RINGER, M.D.

It is well known that iodide of potassium occasionally produces a petechial rash, limited generally, as in the following case, to the legs. A case of this kind occurring in University College Hospital, it was considered a good opportunity to learn whether other iodides act in a similar manner in an equal degree.

These observations were made by Mr. Nankevell, one of the resident medical officers of University College, on a lad aged 17, convalescent from acute rheumatism, and free from fever, to whom was given for a few lingering pains iodide of potassium in ten grain doses, thrice daily.

He began the iodide of potassium on December 4th, and on December 9th a petechial rash broke out on the front and sides of his legs and ankles. The spots were numerous and varied in size from a pin's head to a split pea. Neither on this or any subsequent occasion did any spots appear on any part of the body above the knees. Rather sharp blows over the shins did not bruise. The shins were a little tender. Slight coryza pre-

ceded the spots by a few days. The medicine was discontinued on the morning of the 10th, and by the 15th the spots disappeared. On the 18th he began again the medicine, and on the morning of the 20th, *i.e. after four doses*, the rash reappeared more abundantly than at first, and coryza set in the same evening. The medicine was again discontinued, and by the 26th the rash disappeared; on which day he recommenced the medicine, and by the 28th, *after five doses*, the petechial rash again appeared. The medicine was discontinued, and the rash disappeared on January 1st.

On January 4th the lad began iodide of ammonium, in ten grain doses; after two doses, and in six hours and a half, petechial spots broke out on both legs. He took a third dose, and then the medicine was discontinued, and the spots disappeared on the 9th. He was then ordered iodide of sodium, but owing to a mistake a mixture containing iodide of ammonium and iodide of sodium, each in ten grain doses, was prepared. Of this mixture he took one dose before the detection of the mistake. Afterwards he took iodide of sodium in ten grain doses. On the same night, after two doses of medicine, *i.e.* after ten grains of iodide of ammonium and twenty grains of iodide of sodium, the petechial rash appeared.

On the 15th, the spots having disappeared, the lad began iodide of sodium in ten grain doses, to be repeated three times daily. He continued the medicine till mid-day of the 19th without the appearance of any petechiæ or coryza. At 3 P.M. of that day he began iodide of ammonium in ten grain doses, and at 5 P.M., *i.e.* in two hours, a few spots were visible on both legs. The spots were more numerous and more marked next day.

The iodides of potassium and ammonium produced no other effects than the petechial rash and coryza, neither increasing the pulse nor raising the temperature nor producing the characteristic rash, nor any feeling of weakness.

No doubt it would have been more satisfactory if the iodide of sodium had been given for a longer time and in larger doses, in order to show more conclusively whether the effect of the iodide of sodium differed merely in degree from that of other iodides.

ON THE USE OF PEPSINE IN DIARRHŒA.

BY A. DAVIDSON, M.B.

Assistant Physician to the Children's Infirmary, Liverpool.

THERE is a form of diarrhœa often observed in young children from one to two years old, in which the ordinary treatment by antacids, aromatics, astringents, &c., has no good effect; but if pepsine be administered, it scarcely ever fails to restore the child at once to health. The diarrhœa in this instance arises from feebleness of the digestive powers. A large proportion of the food is not assimilated, and consequently passes on and appears in the motions in an undigested state.

These cases are frequently met with in hospital practice, and are easily recognised. They are not more prevalent in the summer months, but occur at all times of the year. They are most frequent after the period of weaning; but sometimes weakly children fed at the breast are affected in this way. When the children are brought under medical observation, it is usually found that the diarrhœa has existed for several weeks or months, and has resisted all the ordinary treatment by medicines and regulation of diet.

The symptoms are as follows. The motions are frequent, and vary considerably in character in different cases, but always show the presence of undigested food. Usually the action of the bowels takes place directly after the time of feeding, and this circumstance leads the mother or nurse to describe the child's state as one in which the food passes right through it, and does it no good. Of course it is impossible that the food really passes through the intestinal canal so rapidly as this description would imply. What really occurs, is that the ingestion of food into the

stomach excites the action of the bowels, and leads to the expulsion of the half-digested food previously lying in the large intestines.

Considerable disturbance of health usually results from this form of diarrhœa, but by no means the same amount of exhaustion or emaciation as would follow an ordinary attack of catarrhal or inflammatory diarrhœa of the same duration.

In the treatment of this class of cases, it is utterly useless to administer the aromatic and astringent mixtures, or other medicinal remedies suitable for ordinary diarrhœa; but if small doses of pepsine be given with the food, immediate improvement is the result, and ultimately complete cure. The preparation I have chiefly employed is pepsine wine, of good quality, in doses of one teaspoonful three or four times daily. In some instances, an alcoholic solution of pepsine, sold as "Liquor Pepsicus," was given; but this is not quite equal to the wine in efficacy, and is less pleasant to the taste.

The following are illustrative cases, selected from a very large number which I have met with in the out-patients' department of the Children's Infirmary. In only two or three instances out of these have I found the remedy unsuccessful.

Case.—G. H——, aged 18 months, had suffered from constant diarrhœa for six months, and had been treated with all sorts of medicine without benefit. The motions were frequent, dark in colour, and very fœtid, and contained undigested food. His mother stated that the food went through him as soon as he ate it. He was not feverish, but pale, weak, and irritable. A dessert-spoonful of pepsine was ordered to be given thrice daily, no change being made in his diet. Immediate improvement resulted. In ten days it was noted, "He is nearly well; greatly improved in general health; bowels act only thrice daily, and are natural in appearance and odour."

Case.—M. M——, aged 2 years, had suffered from diarrhœa for six weeks, better and worse at intervals. The motions were pale, and contained undigested food. The child was considerably emaciated, tongue clean, and no fever. A teaspoonful of pepsine wine was ordered four times daily. In five days the motions had become natural in appearance and frequency, and the general condition of the child was greatly improved. The

medicine was omitted, and the symptoms gradually returned. Four days after the pepsine was again administered, and continued for some time. Perfect recovery resulted.

Some years ago Dr. Stevenson, in the *Edinburgh Medical Journal*, drew attention to the value of pepsine in the treatment of sickness and constipation in infants.

ON THE TREATMENT OF HYPERPYREXIA BY COLD BATHS.

BY JOHN HADDON, M.A., M.D., ECCLES.

THE treatment of hyperpyrexia must be a subject of the utmost interest to every member of the medical profession. The feelings aroused in a skilful physician having a due sense of his responsible position, as he stands by the bedside of a patient whose temperature is rapidly approaching a point at which life must cease, can only be equalled by those feelings called forth when we behold our neighbour in the heart of some raging fire, from which, by any effort of his own, escape is impossible. Could we stand quietly by, if we knew that by any possible means or effort on our part he could be rescued from the devouring flames? Surely not; and so I think we may infer that the treatment of hyperpyrexia by cold water is likely to be generally tried by the profession.

A century ago, the cold bath was a common treatment for the pyrexial state; and now there is every prospect of its revival and improvement. We have heard of its success in typhoid fever on the Continent; and Dr. Wilson Fox, in his carefully recorded cases, has shown that it may be the means of saving life in acute rheumatism. On theoretical consideration the treatment does not seem at all correct. To apply cold water to a fever-patient's skin in the hope of cooling his blood, and so curing disease, seems to be beginning at the wrong end. Practice, however, has shown that the treatment is worthy of a trial, since, if it does not prove curative, it at least makes life possible in cases where it must inevitably have ceased. I tried cold baths in 1869 in some cases of typhoid fever—in one case that of a young woman aged 21 years, who was in a state of collapse on the ninth day, with a temperature of 99°, and a pulse of 72. On the tenth morning

the temperature was 106°, pulse 140. The baths were begun, and next morning (on the eleventh day) the temperature was 101·6°, and pulse 104. The temperature never rose higher in the morning, and on the fifteenth day it was 97·6°, and pulse 92. Her convalescence was most satisfactory. The patients liked the baths exceedingly, and anxiously looked for their repetition.

The following is a case in which I had recourse to baths, and, though it ended fatally, it shows how life was prolonged for some days.

A. B., aged 4 months, was being brought up by the bottle. I saw her for the first time on July 22nd, 1871, and was told that she had been suffering from diarrhœa and sickness since July 18th. The motions were like green water, and very frequent. The child was much spent, and had a pinched expression. I ordered beef-tea to be given in teaspoonfuls at intervals, and an enema of starch.

23*rd*.—She had a very restless night. The bowels are not so loose, but the sickness continues. At 10 A.M. the temperature was 105°, the pulse could not be counted, and, dreading convulsions, I ordered her to be put in a warm bath. She took a fit as she was put into the bath, and had another at 12 noon. At 12.30 P.M. the temperature was 106°; at 12.40 it was 106·4°. She was in a convulsed state, with dilated pupils, and, so far as I could judge, dying. Seeing that the temperature was rising and death imminent, I asked the parents to allow me to try, as a last resort, cold baths. They had no objection, and I put her into a bath at 98°.

After immersion she was convulsed, and became quite livid in the head and face. The respiration ceased, and the heart beat very slowly; but believing it to be her only chance, I kept her in the bath and added cold water, though her friends thought she was dead. In a minute or less, I cannot tell how long exactly, the heart began to beat faster, respiration recommenced, and in a few minutes her friends were delighted to see her looking brighter and more intelligent than she had done for some days. The bath was cooled down to 84°, and she was removed at 1.15 P.M., having been in half an hour. She had a motion in the bath, kicked about her feet, splashed with her hands and crowed, but did not take notice of any one.

At 1.25 P.M. the temperature had not reached 95°, the lowest mark on my thermometer.

At 1.35 P.M. it was 96·4°. At 2.25 P.M. it was 101°, when she was again put into the bath and kept in till 2.57 P.M.

At 3.15 P.M. the temperature had not reached 95°, pulse 128; she lay quietly in a very drowsy state.

At 4.30 P.M. it was 98·4°, and at 6.15 P.M. 102°, when she was again put into the bath and kept there till 6.45 P.M.

At 7.45 P.M. the temperature was 98·4°. She had a convulsion at 8.30 P.M., and was kept in the bath from 9.10 to 9.35 P.M.

24th.—At 12.30 A.M. the temperature was 100·2°. I directed that if she became very hot and restless, tossing her head, as she did when the temperature was high, she was to be put into the bath again.

Accordingly she was in the bath from 1.15 A.M. to 1.40 A.M. She had a convulsion at 5.15 A.M., and was in the bath from 5.20 A.M. till 5.45 A.M. While in the baths the rectum was washed by an enema. The motions now are less frequent, yellow, and of more consistence. She takes little notice of any one. Her only nourishment has been beef-tea and sherry wine.

At 9 A.M. the temperature was 99·8°, and the pulse 156. Inspiration was short, and expiration long. She starts occasionally, and cries as if in pain, but looks better than she has done since the treatment was begun.

A little milk was now given through the bottle, which she retained.

At 10.20 A.M. the temperature was 100·6°; at 12.10 P.M. 101·5°. She had a bath from 12.35 P.M. till 1 P.M.

At 1.40 P.M. the temperature was 98·4°, pulse 140. She looks much better, sleeping and breathing well, though at times she starts and cries.

At 7 P.M. the temperature was 100·8°. The motions, which occur about every two hours, are brown, and smell very offensively.

She had a bath from 9 to 9.15 P.M. At 10.15 P.M. the temperature was 97·4°, and pulse 148. She has begun to vomit the beef-tea. After the baths she remains for a long time very cold, so that she requires to be put in warm flannels as soon as she is taken out.

25th.—She was in a bath for eight minutes, from 3.45 A.M.

At 9 A.M. the temperature was 100·2°. She looks more intelligent, and takes some notice of her mother.

At 10.15 A.M. it was 103·2°, when she was put into a bath, at 90°, for ten minutes. At 10.30 A.M. temperature 100·2°. At 12.30 P.M. it was 101·2°. She had a motion, which consisted of blood and mucus. Ordered an injection of starch. She takes a little milk out of the bottle, also the wine and beef-tea, and is not sick.

26*th*.—She had a bath for fifteen minutes, at 4 A.M. At 9.15 A.M. the temperature was 103·5°, when she was put into a bath for fifteen minutes. At 1 P.M. it was 103·4°. She was in a bath at 80° from 1.15 to 1.30 P.M. At 6.45 P.M. the temperature was 105°. She was in a bath from 7.15 to 7.30 P.M. At 9 P.M. the temperature was 100°. She was then sleeping quietly. The motions during the day had been yellow and more consistent. She had taken some milk and beef-tea by the spoon, but was too weak to suck it through the bottle.

She remained quiet, and without any convulsion died at 11 P.M.

It will be remarked that when this child was put into the warm bath by her mother, she had her first convulsion. Again, when I put her in, she had another. I had previous to this been somewhat surprised to find that many people were afraid of putting their children into a warm bath, which I very frequently ordered, because they were almost invariably convulsed while in the bath, though they were much better after being taken out.

As an explanation, I contented myself with the belief that it might be the fright of being put into the water which gave rise to the convulsion.

In the cases of acute rheumatism, however, recorded by Dr. Fox, I find that the temperature rises when the patient is first put into the bath; and this, I think, is a more satisfactory explanation of the fact which I had observed.

The temperatures were all taken in the axilla.

In hospital practice it is comparatively easy to carry out the treatment by cold baths. In private practice, however, it is a most difficult matter, and some method more easy of application than that of baths must be devised before the treatment of pyrexia by external cold can be generally used.

The wet pack, the injection of iced water into the rectum, and the application of the ice-bag to the spine, are other methods in use, but they are not so effectual as the baths. What is wanted is some means of keeping the whole surface of the body in contact with the cooling agent, so that a marked effect may be produced on the general temperature.

In applying the ice-bag to the spine, or cold to any part of the body, to ascertain the effect on the general temperature, it must be remembered that the temperature in health so varies that it seldom remains for any considerable time at exactly the same height. If this be not attended to, conclusions drawn from any number of observations will be worthless.

It is very commonly believed among those who use the thermometer in disease, that if you have an evening temperature higher than the morning one you may rest satisfied that there is something abnormal in the system. I have not found it so; and believe that in health the evening is higher than the morning temperature.

On waking in the morning the temperature is invariably low. It begins to rise till it reaches its highest point about 1 P.M. It then falls towards 4 P.M. From about 4 it rises towards 8 P.M. About 8 P.M. it begins gradually to descend, till it reaches its lowest point about 5 A.M.

Thus, if it is 97·5° at 10 A.M., it may be 98·5° at 1 P.M.; 94° at 4 P.M.; 98·4° at 8 P.M., and 97·2° at 5 A.M.

It would seem, then, that there is a natural rise twice in the course of the day; the first towards 1 P.M., and the second towards 8 P.M.

Such being the diurnal variation in health, it must be remembered in making observations on the temperature between 1 and 4 P.M., or after 8 P.M., that a slight decrease may be expected.

In the pyrexial state too, from observation, I believe that the temperature follows a similar course when no new cause of increased or diminished temperature arises to change its course. It is on account of this fact that it is necessary, as far as possible, to take the temperature at the same hour each day.

Again, in using the cold bath in any particular disease, before expressing any opinion as to the efficacy of the treatment, the

normal course of the temperature in such disease ought to be well known, if it can be ascertained. Pneumonia, for example, is a disease which, in the majority of cases, has a tolerably high temperature; but defervescence is often sudden, so that the patient in the course of a very few hours may pass from a state of great discomfort to one of comparative ease.

Thus, on visiting a child with pneumonia of two or three days' duration, if we found a temperature of 101°, ordered a cold bath, and on visiting again next day found the temperature down to 98·3°, we should not be astonished, or attribute the fall to the bath, knowing that in a case of pneumonia of two or three days' duration, with a temperature of 101°, defervescence had already begun.

For example, on November 29th, 1871, I was called to see a boy aged 2½ years. His mother had not noticed anything wrong with him till ten o'clock in the morning, when he suddenly became convulsed. When seen, consciousness had just returned. His temperature was 102·8°, his pulse 138. At night the temperature was still over 102·8°, pulse 130. There were tubular breathing, bronchophony, and dulness on percussion over the apex of the right lung posteriorly. He had no cold bath, but on seeing him next morning the temperature was 97·8°, and pulse 92. He could with difficulty be kept in bed, and the lung was all right in a couple of days.

The following table exhibits the state of the temperature in the case of the child A. B.:—

Date.	Hour.	Temp.	Pulse.	Remarks.
July 23rd.	10 A.M.	105°	—	
	10.30 ,,	—	—	Warm bath. Convulsion.
	12 NOON.	—	—	Convulsion.
	12.30 P.M.	106	—	
	12.40 ,,	106·4	—	Convulsed. Dying (?)
	12.45 ,,	—	—	Bath at 98°. Convulsion.
	1 ,,	—	—	Bath cooled to 84°.
	1.15 ,,	—	—	Taken out of bath.
	1.35 ,,	96·4	—	Drowsy.
	2.25 ,,	101	—	Put into bath.
	2.57 ,,	—	—	Taken out of bath.
	3.15 ,,	—	128	Drowsy.
	4.30 ,,	98·4	—	
	6.15 ,,	102	—	Put into bath.
	6.45 ,,	—	—	Taken out of bath.
	7.45 ,,	98·4	—	Drowsy.
	8.30 ,,	—	—	Convulsion.
	9.10 ,,	—	—	Put into bath.
	9.35 ,,	—	—	Taken out of bath.
July 24th.	12.30 A.M.	100·2	—	
	1.15 ,,	—	—	Put into bath.
	1.40 ,,	—	—	Taken out of bath.
	5.15 ,,	—	—	Convulsion.
	5.20 ,,	—	—	Put into bath.
	5.45 ,,	—	—	Taken out of bath.
	9 ,,	99·8	156	
	10.20 ,,	100·6	—	
	12.10 P.M.	101·5	—	
	12.35 ,,	—	—	Put into bath.
	1 ,,	—	—	Taken out of bath.
	1.40 ,,	98·4	140	Sleeping.
	7 ,,	100·8	—	
	9 ,,	—	—	Put into bath.
	9.15 ,,	—	—	Taken out of bath.
	10.15 ,,	97·4	148	Drowsy.
July 25th.	3.45 A.M.	—	—	Had a bath.
	9 ,,	100·2	—	
	10.15 ,,	103·2	—	
	10.16 ,,	—	—	Put into bath.
	10.26 ,,	—	—	Taken out of bath.
	10.30 ,,	100·2	—	
	12.30 P.M.	101·2	—	
July 26th.	4 A.M.	—	—	Put into bath.
	4.15 ,,	—	—	Taken out of bath.
	9.15 ,,	103·5	—	
	9.30 ,,	—	—	Put into bath.
	9.45 ,,	—	—	Taken out of bath.
	1 P.M.	103·4	—	
	1.15 ,,	—	—	Bath at 80°.
	1.30 ,,	—	—	Taken out of bath.
	6.45 ,,	105	—	
	7.15 ,,	—	—	Put into bath.
	7.30 ,,	—	—	Taken out of bath.
	9 ,,	100	—	Sleeping.
	11 ,,	—	—	Died.

TWO CASES OF ACUTE INFLAMMATION OF THE LINING MEMBRANE OF THE MASTOID CELLS; SUPPURATION; PERFORATION OF THE MASTOID WALL. RECOVERY.[1]

BY JOHN WILKINS, F.R.C.S.

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CASE I.—*Acute Inflammation of the Mucous Lining of the Mastoid Cells; Suppuration; Perforation of the Mastoid Wall. Recovery.*

Mr. W., from the country, a master iron-worker, of sound constitution, was seized in April 1869 with a violent pain in his right ear, extending to the throat, forwards to the temple and backwards across the mastoid process to the occiput. Considerable pain was also experienced down the neck, in the region of the styloid process with its muscular attachments. He had never suffered from ear affection before, and his hearing on both sides had always been markedly acute. He attributed the origin of this attack to a cold caught from a sudden suppression of perspiration, after some heavy work before a smith's forge, when he exposed himself to a strong draught of wind, as immediately upon this he felt the pain in his ear.

He had personally tried several remedies before he applied to his usual medical attendant, who used and prescribed several expedients with the view of alleviating the pain and giddiness in the head; the latter, however, steadily increased, and his medical man, recognising the urgency of the case, advised his quick removal to Melbourne.

[1] This Paper was read before the Medical Society of Victoria, Nov. 1, 1871.

When seen by me, he stated how severe the pain and giddiness had been and then was in his head, and what little sleep he had had since it began three days previously; indeed, he looked as miserable as he felt; the skin was hot, pulse high, and the tongue furred. The pain was *deep-seated* in the right ear and mastoid portion of the temporal bone, radiating from these parts to the whole of the right side of the head and neck.

On examining the parts, a redness and swelling of the skin of the ear were observed, more especially *behind* the ear and the integuments covering the mastoid process: slight pressure in this locality caused severe pain. There was no discharge from the meatus: its mucous lining was swollen and in a highly inflamed state; that portion covering the membrana tympani was equally red; the passage throughout was devoid of moisture, and hot-looking. Its posterior wall was the most painful, but in no portion of the canal could any bulging be seen, indicating pent-up matter.

The symptoms indicated acute inflammation of the lining membrane of the mastoid cells. Active treatment was commenced at once. First day: A dozen leeches were ordered to be applied to the mastoid process and sulcus behind the ear; after their removal a bran poultice large enough to cover the whole of the affected side of the head. The bowels were well cleared with calomel and salines; in the evening opiate draughts were given. He passed an easier night, but towards morning the pain recurred in severe paroxysms. The patient was ordered to inhale steam from poppy-head water; to put over the ear a poultice made with poppy-heads and bran; to apply another dozen of leeches in the evening. Second night: The leeches lulled the pain for a few hours, but after midnight it became worse and of a throbbing nature; towards morning he began to talk incoherently. On examination, the mucous membrane of the meatus auditorius was so much swollen as nearly to close the passage. The veins on the membrana tympani were quite varicose, and the membrane itself unmistakably bulged outwards. The patient now wore the appearance of great suffering, and even the powerful opiates only produced temporary ease. The throbbing and deeply-situated pain, incoherence, and bulging of the membrana tympani left no doubt of there being a collection

of fluid in the inner parts of the ear. Seeing the critical condition of the patient, I at once determined to incise the drum, and by means of a small canaliculus knife a good slit was made in the membrane from above downwards, behind its attachment to the manubrium. A small quantity of sero-sanguineous fluid escaped, containing globules of pus. The little that came away disappointed me; it nevertheless removed the tension of the membrana tympani, and gave considerable temporary relief to the sufferer. Large poppy poultices were repeated, and opiates proportionate to the pain. Third night was passed restlessly, with scarcely any sleep, much pain, and giddiness in the head; a moderate quantity of fœtid discharge had escaped from the meatus upon the poultice during the night.

By the morning the integuments over the mastoid were more puffy and painful. During the day many measures were tried to alleviate his sufferings. Fourth night: Symptoms more severe and becoming alarming; patient at times quite strange. The skin over the mastoid more tumefied and of a dusky colour, and the pain here was intense upon the slightest touch; yet there was no appearance of fluctuation in the ear itself or round it.

The symptoms, however, made it evident that most of his truly miserable state proceeded from fluid contained in the mastoid cavity, and that no other than a fatal result could ensue unless something more were done to remove the internal pressure. I therefore placed a towel over his head, laid it against my chest, and with a strong scalpel made by firm and steady pressure a free opening through the skin and mastoid process into its cavity, and was gratified on withdrawing the knife to witness a good flow of a thick and fœtid pus follow it. He got instantaneous relief, and had not a bad symptom afterwards. The discharge from the meatus lasted about a fortnight, and continued to ooze through the perforated mastoid bone for nearly a month, when the wound closed. By this time the patient had acquired his usual good health, and was well enough to resume his ordinary occupation. He visited me about nine months afterwards, in robust health: his hearing in that ear was perfect, the slit in the membrana tympani had healed, and, corresponding to the part incised nine months previously, I could distinctly see the line of incision by its whitish, thread-

like appearance. The mastoid process was firm, and no pain whatever was elicited by a few sharp taps applied to it with my knuckles.

CASE II.—*Inflammation of the Tympanum, extending to the Mastoid Cells; Suppuration; Perforation of the Mastoid Wall. Recovery.*

Mrs. F., age 26, married, and has several children, consulted me November 14th, 1870, on account of a severe pain in her left ear. She stated that three weeks previously, after riding in an open car, she was seized with a violent pain in her ear, which in a day or two extended to the whole side of the head, and particularly round the occipital region, and a ringing noise was very troublesome in the ear. About a week after the first sensation of pain a discharge came from the passage, which at first gave much ease, but in the course of a few days the pain got worse, and became paroxysmal in its attacks, which always increased in severity upon her getting warm in bed at night; during the daytime it was easier, but she could not say that she was absolutely free of it either day or night. She had never suffered before from ear affection. She was suckling a child of six months old, and complained of great weakness and giddiness. Upon examination she looked anæmic and weakly; pulse was 90; tongue furred; her ear was very red, and the mucous lining of the meatus swollen and sodden-looking, and filled with a thin, dark, and offensive matter. It was exceedingly painful to the touch. After clearing away the discharge, an aperture was noticed at the lower and back part of the membrana tympani, through which the discharge escaped from the tympanum: the smallest-sized speculum had to be used on account of the painful and tumefied condition of the membrane lining the canal, but a satisfactory view was obtained by throwing in the powerful light used for laryngoscopic purposes. The skin between the mastoid process and the ear was very red and puffy; that over the mastoid was congested; pressure on this bone only caused a slight increase of pain. I requested her to wean the baby, and ordered tonics and good living; two leeches to be applied for several consecutive nights, the parts to be kept clean once or twice a day, and a poultice made with poppy infusion

to be put over the head. This treatment eased the pain a good deal for some days, and she picked up in strength. December 6th, all the symptoms had become more aggravated: she thought she had got a little fresh cold, the giddiness was more severe, and the buzzing in the head most troublesome; the paroxysms of pain increased in frequency and severity; discharge from the meatus about the same. The skin over the central and inner portion of the mastoid process was redder and quite tumefied; pressure in this locality *now* gave excessive pain. With a view of relieving the tension and pain in this part, I made a free incision down to the bone; no discharge, however, escaped beyond a little serum and blood. The poultice was repeated, and opiates given at intervals: chloral answered admirably. No permanent relief was effected, and four days after I was summoned late at night, as Mrs. F. was supposed to be dying. I found her in a delirious state; pulse 140; the pain was described by the attendants as being intense, deep, and throbbing. The head symptoms now seemed alarming; and as her case had resisted every measure prescribed, and feeling assured that thick matter must be pent up in either the tympanum or mastoid cells, or possibly in both, and remembering the satisfactory result of Case No. 1 above described, I passed a strong scalpel through the wound made on the 6th, and plunged it right through the mastoid process to its cavity: a small quantity of a very thick, black-looking, and exceedingly offensive matter followed. A large poultice covering the whole side of the head and neck was applied, and in the course of thirty minutes a perceptible improvement in the patient was noticed. A dose of chloral was given her, and shortly she fell into a sound sleep; and in twenty-four hours after the perforation of the bone the whole pain and noise in the head subsided. The aperture was kept open by means of oiled lint. From this time Mrs. F. made an uninterrupted recovery. The discharge oozed from the meatus in gradually diminished quantity till the 10th of January, and from the mastoid opening till the end of the same month, when it was allowed to close. There was no destruction of bone either in the tympanum or amongst the mastoid cells. She soon regained her strength, and in two months afterwards the hole in the membrana tympani had healed, and she was able

to hear the tick of a watch at the normal distance for good hearing.

REMARKS.—The two cases here presented to your notice are interesting in many particulars; acute inflammation of the lining membrane of the mastoid cells not being a very common occurrence at any time of life, and less often seen in an adult subject where there never has existed a predisposition to ear affection; and when it does occur, the end is more often fatal than otherwise; and even in recovery, the parts have become so disorganized from destruction of bone, loss of hearing, &c., that the sufferers seldom get over for life the inconveniences arising from the attack. As a rule, it is said to be very difficult to diagnose between acute inflammation of the tympanum and that occurring in the mastoid cells; but if we possess a proper acquaintance with the anatomy of the parts, we shall see that the distinction is very marked. One great characteristic symptom of acute inflammation of the mastoid cells is the severe and continuous pain experienced at the base of the occipital region; next, we have the excruciating pain felt on slight pressure over the mastoid itself, and the tumefied condition of the integuments covering that process. There, internally, the pain is deeper-seated and comes on more in paroxysms, and there is considerable giddiness; in the worst cases drowsiness and coma. On examination of the meatus, its posterior wall, corresponding to the front wall of the mastoid cells, is peculiarly sensitive to the merest pressure: when these marked symptoms are present, and the patient gets no substantial relief from a free opening in the membrana tympani, and one through the integuments of the mastoid process to the bone, we may fairly conclude that disease exists in the cells of the latter; and knowing that acute inflammation cannot exist long in any part without suppuration, and that pus will not remain boxed up, but will make a passage for its escape somewhere, it is only rational treatment and assisting nature to open the mastoid, immediately over the seat of the disease, to allow the escape of the matter. Though pus almost invariably has a tendency outwards, if you examine the specimen of bone I have brought here this evening, you will notice it is not unlikely that before the matter could

make a passage for itself through the thick and stone-like hardness of the outer wall of the mastoid process, destruction of its inner thin plate would happen, and of course speedy death would be likely to follow. Death might also be brought about by the absorption into the system of this fœtid matter by the veins, or from sympathetic brain affection, producing abscess, &c.

The happy result of the two cases here most undeniably justified the means. I had never resorted to this operation before, and I see, on referring to Toynbee on Diseases of the Ear, that he had never performed the operation, though he had spoken favourably of the probable success which might follow it. In my two cases I feel satisfied that the operation saved the lives of both patients. To perforate the bone a strong scalpel is necessary; otherwise the knife is sure to break, as mine did in Case No. 1. The inflammation has a softening effect upon the outer hard table of the process, and the bone cuts as if you were forcing an instrument through a thickish piece of india-rubber. Steady and firm pressure must be made with the instrument used, in case a sudden and unexpected jerk should force it through the thin and inner boundary wall in close promixity to the lateral sinus. There are many points of interest I could mention in regard to the difference in the two cases I have cited to you, but I ought to apologize, knowing I have already occupied too much of your time; yet I cannot conclude my remarks without mentioning the peculiarity of the discharged pus, which was in both cases the most offensive I had ever experienced; its decomposition and absorption in the cavity may account for so many of the deaths that have taken place from this disease. Lastly, I must not omit to mention the great value of the laryngoscope light as an aid in treating ear affections, as it enables one to get a much better view of the canal and drum of the ear (the former in these cases being invariably so much contracted from sympathetic inflammation than could be obtained by the unaided eye.

WESTMINSTER HOSPITAL PAPERS.

VI.

ON THE ELIMINATION OF ALCOHOL.[1]

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PART I.

PREVIOUS to the year 1860, it was the generally received opinion that the greater portion of any alcohol taken was oxidised in the system, and only a small fraction eliminated unaltered. In that year, however, Messrs. Perrin and Lallemand published an elaborate memoir on the subject, in which they maintained that all, or at least nearly all, the alcohol taken is eliminated again unaltered. This opinion was soon very generally adopted, notwithstanding the fact that Messrs. Perrin and Lallemand had never succeeded in recovering, from the excretions, more than a very small fraction of the alcohol which had been consumed although very large doses were frequently administered. However, the missing alcohol was easily accounted for as unavoidable loss.

Soon after, Dr. Anstie took up the subject, and, on the strength of numerous qualitative experiments, arrived at the conclusion, which he was the first to publish in this country, that the originally received opinion was correct, viz. that a small portion only of any alcohol taken is eliminated unaltered. After this

[1] Abstract of Paper read before the Royal Society.

Dr. Thudichum and the author in this country, and Schulinus abroad, undertook a number of quantitative experiments, and proved that a minute fraction only of the alcohol taken is eliminated by the kidneys. Owing to these researches, general opinion gradually reverted to the original notion. Quite recently, however, Drs. Parkes and Wollowicz have published several valuable memoirs on the action of brandy, alcohol, and wine, on the human body, in which they adopt, at least partially, the views of Messrs. Perrin and Lallemand. But here also no quantitative results are given which will account, even approximatively, for the amount of alcohol supposed to be eliminated. Drs. Parkes and Wollowicz believe that the elimination of alcohol may go on for five or six days after the last dose of alcohol has been taken, and they express the opinion that Dr. Anstie and the author, by assuming that elimination practically ceases after twenty-four hours, had considerably under-estimated the amount of alcohol really eliminated. The author has, therefore, been induced once more to investigate this subject.

Assuming, then, for the sake of argument, that all the alcohol is eliminated, and that such elimination takes ten days (this seems the very utmost that can be conceded. In the numerous experiments by Dr. Bence Jones and the author, on the passage of substances into and out of the tissues, it was found that the elimination of lithium was completed in five to six days, while all elimination of quinine ceased after two days: in neither case did any of the substance remain behind), it would follow that if a certain quantity of alcohol be taken daily, the amount eliminated would increase from day to day until, from the tenth day onward, the amount eliminated daily would equal the daily consumption; in other words, the quantities which would be eliminated, if this theory be correct, might be measured by ounces instead of by grains, and even the most ordinary processes of analysis could not fail to yield considerable quantities of alcohol. The argument loses nothing in force if it be contended that elimination lasts longer than ten days, for, however long it may last, if the alcohol diet is continued, a time must come when elimination and consumption would be equal. Obviously, however, there is a tolerably narrow limit given to the time during which elimination can be assumed to last, for

the alcohol, if not eliminated, must accumulate in the body, and would speedily rise to a proportion totally incompatible with life itself. Obviously, the same reasoning will apply even if it is assumed that a part only of the alcohol is eliminated unaltered, but that such elimination takes more than one day. Here also the amount eliminated daily, under a regular alcohol diet, would at first increase from day to day, and only become constant after the period during which the elimination of one day's consumption lasts is passed; be this two, five, or more days. If, on the other hand, all elimination taking place is completed in twenty-four hours, no increase in the daily elimination will supervene however long the alcohol diet may be continued. The experiments recorded in the following pages were guided by the foregoing considerations.

Alcohol is eliminated through four channels, kidneys, lungs, skin, and bowel. The elimination by skin and bowel is, however, insignificant, even as compared to that by kidneys and lungs.

EXAMINATION OF THE URINE.—The urine to be examined is distilled and redistilled repeatedly until the quantity is reduced to about 20 cub. cent.; the distillates are made, alternately, acid and alkaline; and care is taken that never less than about one-third of the quantity in the retort is distilled over. The final distillate is then put into a small assay flask, mixed with a slight excess of bichromate and sulphuric acid;[1] the flask is closed by a well-fitting india-rubber stopper, tied down firmly, and heated for one hour in a water-bath. The acetic acid produced is then separated by distillation, and estimated by means of a standard solution of caustic soda. This process, when carefully conducted, yields very accurate results, even with minute quantities of alcohol. Thus in two check experiments, in which 0·1 and 0·025 grms. of alcohol were employed, the acetic acid obtained neutralised 20·1 and 5·5 cub. cent. of a deci-normal soda solution[2] respectively, corresponding to 0·0924 and 0·0253 grms. of alcohol.

[1] This bichromate solution is made by dissolving 147 grms. of bichromate of potassium in some water, adding 200 grms. of strong sulphuric acid, and making up the solution to 1400 cub. cent.

[2] A deci-normal solution of soda is one containing one-tenth of an equivalent of hydrate of soda in one litre of water.

EXAMINATION OF BREATH.—By help of a suitable mouthpiece the breath is blown through a chloride of calcium tube into a large air-tight bag, placed between light pressure boards; from this it passes through a retort, in which water is kept boiling, into a Liebig's condenser. The steam, on being condensed, carries down with it the greater part of the alcohol contained in the air. In the distilled water collected the alcohol is estimated exactly as described in the case of urine. To test the degree of reliance to be placed on this method, weighed quantities of alcohol were evaporated in about twelve cubic feet of air (equivalent to about one hour's breathing); the air was then passed through the apparatus, and the alcohol estimated in the distilled water collected.

First Experiment.—Amount of alcohol contained in the twelve cubic feet of air, 0·004 grms.; acetic acid obtained neutralised 0·67 cub. cent. deci-normal soda, equivalent to 0·031 grms. alcohol.

Second Experiment.—Amount of alcohol contained in the twelve cubic feet of air, 0·0080 grms.; acetic acid obtained neutralised 1·25 cubic cent. deci-normal soda, equivalent to 0·0058 grms. alcohol.

Third Experiment.—Amount of alcohol contained in the twelve cubic feet of air, 0·0415 grms.; acetic acid obtained neutralised 6·05 cubic cent. deci-normal soda, equivalent to 0·00278 grms. alcohol.

We have, therefore, amount of alcohol

	Taken.	Found.
First experiment . .	0·0040	0·0031
Second „ . . .	0·0080	0·0058
Third „ . . .	0·0415	0·0278

In the first two experiments three-fourths, in the last two-thirds of the alcohol contained in the twelve cubic feet of air were recovered from the distilled water.

By means of the above methods two series of experiments on he elimination of alcohol were undertaken, and for the sake of bsolute certainty, the author conducted them in his own person.

First Series.—After having abstained, absolutely, for a period f ten days, from all alcoholic drinks or other articles of diet

containing alcohol, on the eleventh day the urine was collected and the breath blown through the apparatus for half an hour. On the twelfth day, and on each of the twelve succeeding days, 112 cub. cent. of brandy (containing 48·68 grms. of absolute alcohol) were taken daily: 28 cub. cent. at 1 P.M.; 56 cub. cent. at 6 P.M.; 28 cub. cent. at 11 P.M. The urine was collected between the hours of 3 P.M. one day and 3 P.M. the next day, on the first, sixth, and twelfth days of the brandy diet. The breath was blown through the apparatus for half an hour between 3 and 4 P.M. on the same days. Lastly, the urine was collected during the five days following the cessation of the alcohol diet. The analytical results obtained are arranged in the following table:—

TABLE I.

Abstained from the use of Alcohol on February the 26th, 1871; first 56 cub. cent. of brandy taken on March the 8th, at 6 P.M.

Day, counting from Feb. 26th.	Cub. cent. of deci-normal soda, neutralised by acetic acid, obtained from		Amount of absolute alcohol eliminated in twenty-four hours through		Amount of absolute alcohol taken in twenty-four hours.
	Half-hour's breath.	Twenty-four hours' urine.	Breath.	Urine.	
	Cub. cent.	Cub. cent.	Grms.	Grms.	Grms.
11	0·03	0·64	0·0083	0·0031	—
12	0·05	9·44	0·0138	0·0434	48·68
17	0·05	7·80	0·0138	0·0359	48·68
23	0·04	5·00	0·0110	0·0230	48·68
24	—	0·64	—	0·0029	None
25	—	0·29	—	0·0013	None
26	—	0·40	—	0·0018	None
27	—	0·50	—	0·0023	None
28	—	0·45	—	0·0021	None

Total amount of absolute alcohol taken during the twelve days, 584·236 grms.

Total amount of absolute alcohol eliminated by the kidneys during the same twelve days, taking the amount eliminated on the six days as representing the mean elimination during the continuance of the alcohol diet, 0·4308 grms.

Total amount of absolute alcohol eliminated during these days, in the breath, taking the amount eliminated on the six days as the mean, and adding one-third for loss, as shown by the control experiments, 0·2208 grms.

Second Series.—Discontinued the use of alcohol in every shape on March 20, 1811. On March 29th, at 10 A.M., took 56 cub. cent. brandy (same brandy as in previous experiment). The urine was collected during intervals of three hours up to the twelfth hour, from the twelfth to the twenty-fourth, and during the two succeeding days. The breath was blown through the apparatus, for ten minutes at a time, every half-hour during the first nine hours, and during one hour (between 2 and 4 P.M.) on the two days, following. The results are arranged in Table II.

TABLE II.

56 cub. cent. Brandy taken March 29th, at 10 A.M.

Period of elimination.	Alcohol eliminated in breath.			Alcohol eliminated in the urine.	
	During the one hour.		During entire period.	Acetic acid obtained neutralised deci-normal soda.	Equivalent to alcohol.
	Yielded acetic acid, neutralising deci-normal soda.	Equivalent to alcohol.			
	Cub. cent.	Grms.	Grms.	Cub. cent.	Grms.
0 to 3 h.	6·9	0·03174	0·0952	36·36	0·1672
3 „ 6 „	0·35	0·00138	0·0042	0·63	0·0029
6 „ 9 „	0·25	0·00115	0·0035	0·45	0·0021
9 „ 12 „	—	—	—	0·05	0·00023
12 „ 24 „	—	—	—	0·36	0·0017
2nd day	0·25	0·00115	0·0276	0·40	0·0018
3rd day	0·25	0·00115	0·0276	0·46	0·0021

Total amount of absolute alcohol taken, 24·34 grms.

Total amount of alcohol eliminated in breath, adding one-third for loss, 0·2337 grms.

Total amount of alcohol eliminated in the urine during the three days, 0·17803 grms.

The examination of Table I. shows that, even after ten days' total abstinence, a substance is eliminated by the kidneys which, when separated from the urine by distillation and oxidised by bichromate, yields a volatile acid (having the smell of acetic acid). An opportunity was, therefore, taken to examine the urine of a gentleman, a teetotaller, who had only once in his

life, and that two years previously, taken some spirituous liquor. On treating this urine in the usual manner for the detection of small quantities of alcohol, an amount of volatile acid was obtained from one day's urine which neutralised 0·5″ deci-normal soda. The experiment was twice repeated, with different days' urine, with the same result. The smell of the volatile acid, in this case also, was that of acetic acid. We may, therefore, look upon this substance, whatever it may be, which yields the volatile acid, as a normal constituent of urine, and must consider the elimination of alcohol as at an end as soon as the volatile acid obtained by oxidation sinks to the normal amount. Leaving the nature of this substance out of consideration for the present, we thus arrive at the following conclusions:—

First. The amount of alcohol eliminated per day does not increase with the continuance of the alcohol diet; therefore all the alcohol consumed daily must, of necessity, be disposed of daily; and as it certainly is not eliminated within that time, it must be destroyed in the system.

Second. The elimination of alcohol following the taking of a dose or doses of alcohol is completed twenty-four hours after the last dose of alcohol has been taken.

Third. The amount of alcohol eliminated, in both breath and urine, is a minute fraction only of the amount of alcohol taken.

A consideration of Table II. leads substantially to the same conclusion. Here, a single dose of brandy having been taken, elimination had ceased to be perceptible nine hours after the dose was taken. The proportion of alcohol eliminated during this second experiment is, however, considerably higher than it was in the first series. This was most likely owing to the strong diuretic effects of the brandy, taken early in the morning, which occasioned an excessive elimination during the first three hours.

VII.

ɛVATIONS ON THE TREATMENT OF SPINAL CURVATURE.

BY RICHARD DAVY, F.R.C.S.

Assistant Surgeon to the Hospital.

ɛeatment of spinal curvature may be essentially subdi-
nto—firstly general, and secondly mechanical, treatment.
er the first count are included rest, sea-side air, strengthen-
ɔd, oleum morrhuæ, careful nursing, and such like; and
e Sir Benjamin Brodie concentrates the essence of such
ɛnt in advising a couch pleasantly situate near the sea-
indeed, it is useless to undertake the treatment of this de-
r without paying marked deference to the general means
ɛ; but especial prominence has been given in this short
ɔo the local and mechanical means of surgical assistance.
er the second count are included local and mechanical

utmost importance must be conceded to the recumbent
ɛ at an early stage of the deformity. This necessity for
ɛest is in many instances entirely overlooked by the
ɜ; many a child is unnecessarily tormented by an anxious
ɛ, who runs from one Orthopœdic Institution to another,

insisting on this principle of rest with them is to net over their cribs; whilst among the hunchbacks at or about the time of puberty there exists such a refractory impatience of restraint and such precocity as to baffle the good intentions of any surgeon. Before leaving the subject of the recumbent posture, let especial stress be laid upon its importance in cases of cervical curvature; so as to avert any secondary implication of either the medulla oblongata, or roots of the phrenic nerves.

The difficulty then of restraining these cases of spinal curvature led to the employment of spinal instruments, on the principle of relieving the vertebral column of superincumbent weight, while freedom was allowed for taking sufficient exercise to maintain a certain degree of vigour.

What can the surgeon fairly expect from the use of a spinal instrument? Simply support, and a correction of the tendency to increased deformity. As a gardener supports the delicate stem of a plant by a firm stake; or as in young fir plantations side support and an upward direction and shelter are ensured by adjoining stems; so the surgeon uses a spinal instrument to shelter, support, and as it were coax the feeble spine into its healthy, natural position.

Let me now express my strong dissent to the too universal application of spinal instruments. Surgeons weekly receive application for spinal instruments, where no spinal disease exists, and where the appliance (if granted) would but tend to increase the deformity.

Let me further object to and expose a rather numerous class of individuals, who foolishly believe that their duty to their deformed charge has been performed as soon as the victim has been encased in a spinal instrument, and thus seek to shift the onus of treatment from their own to the surgeon's shoulders.

Still further, objection must be taken to the intrusive desire of any instrument-maker to complicate the essential simplicity of a spinal instrument: as a rule, the more movements, the more pay for the instrument-maker; but the more movements, the less relief for the patient.

Complicated movements, if kept in action, must guarantee much interference; if unused, such movements are quite unnecessary.

Side plates are certainly advantageous, if manual support to the projecting ribs and transverse processes gives relief to the patient; and of all elevating principles that have been applied to the crutch of spinal instruments there is none so easy and so practically useful as the principle used by Sayre for extension in cases of morbus coxæ. It allows elevation or depression to be performed easily, safely, and advantageously, either by the surgeon or patient; many a sore axilla will be saved, and much more support (consecutive on the growth or improved condition of the vertebral column) will be gained by the further use of his elegant mechanism. Many of the spinal instruments for the Surgical Aid Society of London are now being manufactured by Mr. Lindsey after this plan.

The natural cure of these deformities consists in bony anchylosis of the bodies of the vertebræ; and the frequency of bony nodules being found on bodies of the vertebræ demonstrates how ready nature is to throw out support for a feeble spine: yet even in old permanent fixtures of angular curvature of the spine you may still see movements on the instrument worn; *i.e.* the officious surgeon endeavouring to undo what nature has wisely done. Let me once more insist therefore on the strict simplicity of a spinal instrument, as an agent of support as opposed to coercion.

To summarise this sketch. Grant attention to the sterling value of an early correct diagnosis; good general treatment; the importance of rest; the recumbent posture; and mechanism only as supportive agents.

1. For recent cases with advancing deformity, general treatment, rest, recumbent posture: as nature regains strength, and the bony deposit is being organised, mechanical support, and the sparing adjustment of spinal movements.

2. In chronic cases with stationary deformity, general treatment and mechanical support.

3. In hysterical cases, chloroform must be administered; moral control and physical exercise employed; and a full exposure given to any smack of deception.

4. In weakly constitutions with slight deformity, tonic treatment, sea-side baths, and correction of faulty tendencies.

VIII.

REPORT ON ERYSIPELAS; WITH REMARKS ON THE CASES OBSERVED IN THE MEDICAL WARDS OF THE WESTMINSTER HOSPITAL DURING THE LAST EIGHTEEN MONTHS.

BY DR. R. J. LEE.

So long as we are ignorant of the cause, nature, or origin of erysipelas, it is reasonable to expect considerable difference of opinion on the best mode of treating that disease.

In the Westminster Hospital during the last eighteen months about thirty cases have occurred. A few of the patients are not yet convalescent. As the treatment adopted in twenty-seven cases was varied, the attention of the reader is invited to a brief analysis of the leading points which are of chief interest to practitioners.

In the winter of 1870 during November and December 9 cases were admitted; in January 1871, 1; May, 3; July, 1; August, 4; September, 4; October, 2; November and December, 3; a few still remaining under treatment, for there has been a prevalence of the disease during the last two months both in the medical and surgical wards.

Of these 27 cases 18 were females, 9 males; the average age of the former 30, of the latter 52; the youngest of the females was 13 æt., of the males 44 æt., with the exception of a single case of a boy 6 æt.

The treatment adopted was both general and local; 12 were treated with the tincture of sesquichloride of iron in average dose of ℥xxx; 14 with cinchona, acids, salines, &c. as the symptoms appeared to suggest. In the case of the boy no medicine was administered.

The local treatment was the same in the majority of cases; namely, the application of a mixture of collodion and castor oil in common use in the hospital.

One fatal case occurred under general treatment, and one where tinct. fer. perchlor. alone was administered.

In 7 there was local disease of the skin prior to the attack of erysipelas, either simple abrasion, or ulceration, or diseased bone. In the other cases the common cause assigned was cold. The symptom of sore throat was absent in more than 20 cases. In one it had existed for a fortnight before the face and head were attacked. In two cases, where there was local disease (in both, large abscesses from diseased bone), the erysipelas did not appear in the region of disease, but commenced in the face in the usual manner, subsequently spreading extensively, and attacking the skin around the abscess.

In two young women the disease returned a second time soon after convalescence from the first attack. They were in the same ward at the same time, and were both of scrofulous habit. The same occurrence was observed in the case of a man, the first attack lasting 18 days, the second 11 days, with an interval of only a few days between the attacks. It also occurred in a woman of middle age, the recurrence proving fatal.

The duration of the fever, and particularly the subsequent effects of it, seemed to depend as much upon the patient's previous state of health as upon the treatment.

Those cases which presented the typical symptoms were treated with the sesquichloride of iron; those in which complications occurred had the remedies administered which the symptoms appeared to require. Of these complications not an uncommon one was diarrhœa. In the simple cases the skin appeared to be more superficially affected than in the severer cases. In the former, vesicles were numerous, and subsequent desquamation extensive. In the latter, the deeper tissues of the skin were chiefly involved, while the surface was only slightly affected. This was observed in the cases in which small abscesses formed in the late stage of the inflammation, and in the two cases of recurrence appeared to be connected with scrofulous habit.

While observing the plan of treatment with the tincture of the sesquichloride of iron in other hospitals, I have noticed that cases of the most typical character have usually been pointed out as examples of the "specific" effects of the remedy

employed, and to this cause may be attributed the confidence entertained by some practitioners in its virtue. For the sake of comparison between one plan of treatment and the other, the following cases have been selected on account of the similarity which existed between them as regards the symptoms and general conditions prior to the attack.

General Treatment.

Age.	Sex.	Days in Hosp.
55	Male	30
28	Female	24
44	Male	18
40	Female	21
51	Male	14
40	Female	53
20	Female	26
32	Female	46

Average No. of days, 29.

Treatment with Fer. Perchlor.

Age.	Sex.	Days in Hosp.
36	Female	74
47	Female	14
31	Female	14
40	Female	17
28	Female	26
60	Male	71
30	Female	47
29	Female	13

Average No. of days, 34·5.

THE ELIMINATION THEORY OF THE CURE OF DISEASES.

BY DR. ANSTIE.

PART I.

I HAVE for a long time past been tempted to join in the discussion concerning the so-called "eliminative" treatment of disease, but have so far not spoken in my own name, because it seemed a matter of course that some of our senior colleagues would take the question up sincerely. We have now had expressions of opinion from Sir W. Gull and Dr. A. W. Barclay among the elder members of the London profession; and it is remarkable that they concur in their general tenor, and they also agree generally with the line taken by Dr. Clifford Allbutt and Dr. James Ross, in condemning the eliminatory theory as based upon merely speculative rather than inductive reasoning.

It will also be remembered that Professor Haughton (whom Sir W. Gull quotes) expressed himself strongly, in a similar sense, when speaking especially of the phenomena and treatment of cholera, before the British Medical Association at Oxford, in 1868.

I am sincerely glad to think that there is already such a respectable demonstration of English medical intellect in favour of the opinions which I also hold; for it is certain that there is no belief more deeply rooted—as I believe there are few more pernicious—than the conviction entertained by a large proportion of medical men that disease is a something of which the body endeavours to rid itself by "eliminatory efforts," and that our treatment should be directed to aid these supposed efforts. With the best help in the world, we shall have a hard fight to establish

the newer doctrine: and as such a battle is not won in a single shock, but only by a series of varied and reiterated assaults, I propose to offer my humble contribution to what is (for me) a sacred war. It is my intention to examine, in the first instance, the value of arguments, for the natural or artificial eliminatory cure of disease, that are derived from the observed behaviour of the organism under the action of particular poisons.

There are several different plans according to which we might classify the poisons for the purposes of this argument about elimination; but I have no objection to adopt, for the present, that of the anonymous writer in the *British Medical Journal* for January 20th, and to group poisonous agents as mineral, vegetable, and animal. Concerning all these varieties of poisons and their destiny in the organism, I shall have to speak in the course of time. Before commencing the discussion as to particular agents, however, it will be well to ask ourselves what is the precise meaning attached to the word "elimination."

I apprehend that this word implies, in the mouth of Dr. G. Johnson (who may be fairly taken as the representative of the elimination doctrine), that the poisonous agent which is causing the disturbance in the body is useless in subserving the natural forces of life, and can only educe force in the way of perturbation: and that the body has been designedly furnished by the Creator with an organic instinct which causes it to rebel against the presence of such substances, and to cast them out of itself, as nearly as may be in their original form, or with only such changes as may be necessary to facilitate their expulsion.

Now, taking first the example of the mineral poisons, it is of course easy enough to establish the fact that arsenic, antimony, and so forth, do get expelled from the body in large quantity: yet even here it would be difficult to establish the beneficial intentions of Nature, for there is an awkward tendency to persistent retention of considerable portions of the deadly agent in the substance of the parenchymatous glands, in the bones, &c., from which (supposing the patient to survive) there are probably very serious chances of its being taken up into the circulation, and again becoming mischievously active. In fact, the whole phenomena of mineral poisoning appear, to the unprejudiced eye, very much more dependent upon the operation of

simple physical causes—the laws of diffusion, and of endosmose and exosmose—than upon anything else: and whatever is not explicable in this manner is to a great extent referable to an accidental intercurrence of vaso-motor paralysis, allowing considerable discharges of water from the blood by the medium of the glands (especially the kidneys), which carry off more or less of the poison, but also allowing, in all probability, those unlucky deposits to take place in the liver, the spleen, &c. The instance of lead-poisoning, also, seems to me to be a very singular illustration of the beneficent eliminatory tendencies of Nature; since the very fact which is quoted as an instance of effective *artificial* elimination—the removal of the poison by means of iodide of potassium—seems expressly calculated to remind us that Nature, if she intended to eliminate the lead at all, has made (*and always does make*) a frightful series of blunders in the attempt.

I shall not dwell, however, on the question of mineral poisoning on the present occasion; to that I shall revert in a future paper. I prefer, now, to take up the subject of poisoning with a particular agent, belonging to the class of organic products of vegetable origin, which has lately been more than once quoted by Dr. Johnson as a specially good example of the eliminatory efforts of Nature, viz. alcohol.

Now, the fact is, that the behaviour of the body, in presence of a poisonous dose of alcohol, is so far from being an illustration of protective elimination, that it is one of the strongest examples that could be adduced to discredit the existence of any such beneficent natural tendency. It happens that the present number of the *Practitioner* contains the abstract of a paper which Dr. Dupré has just read before the Royal Society, which gives the *coup de grâce* to the arguments which Dr. Johnson bases on the supposed behaviour of the organism towards alcohol.

One of the most unfortunate and mischievous errors that has ever been put forward by scientific men was the statement by Lallemand, Duroy, and Perrin, in 1860, that all, or nearly all, the alcohol taken into the body was discharged unchanged. So imposing was the pomp and parade of research with which these conclusions were delivered to the world, that even those who (like myself) believed that they were inaccurate, could have had

no suspicion of their total incorrectness, at first. Although various repetitions of the French experiments at once proved that the idea of total elimination was absurd, we could not at first believe that the exact opposite (or nearly so) was the truth: and so late as 1866, in writing my article on Chronic Alcoholism for Reynolds's "System of Medicine," I still believed that there was some ground for thinking that as much as one-third of any *poisonous* dose of alcohol might be discharged unchanged, by the skin, lungs, kidneys, and bowels together. The error was, however, corrected in an Appendix to that very article, for in 1867 the fresh researches which I had made, and particularly the precautions against fallacy which Dr. Dupré suggested to me, had convinced me that Lallemand had been far more wrong than I at first supposed.

Without further reference, however, to the various steps of the inquiry, I may now state the present condition of the question, and the bearing it has on the general subject of the elimination of poisons.

Whatever other differences of opinion there may be, all physicians are agreed that, in large doses, alcohol is a paralysing narcotic. The only question is whether there is any line that we can draw which marks the dose at which alcohol begins to be narcotic, or whether small doses are not also narcotic, though in less degree. Now, it is a remarkable fact that recent researches have shown that there is a line of dosage below which *no* elimination takes place; that this is pretty nearly constant for each individual, and that it corresponds to a marked absence even of the slightest signs of narcosis. Let but the individual pass the line by just so much as is necessary to excite a little flushing of the face, or a slight diuresis, and immediately a small but definite quantity of unchanged alcohol will pass in his urine. Moreover, Dr. Dupré has made the exceedingly interesting discovery[1] that the *apparent* elimination of fractional quantities of alcohol when but moderate doses have been drunk is a fallacy, dependent on the previously unsuspected fact that the urine, even of teetotallers, who have for a long time never tasted alcohol, contains a small quantity of a substance which is

[1] Which will be detailed in our April number.

volatile, and which presents all the reactions of alcohol with the usual chemical tests.

Here, then, there would at first sight seem to be a strong instance of the beneficent operation of Nature; for the dose which does not narcotise is not in the smallest degree eliminated from the body, while the excessive dose at once provokes elimination. But, unfortunately, the latest inquiries quite negative the idea that this last is a true protective elimination. It is true that unchanged alcohol passes in the excretions, but it is still in perfectly fractional quantities (a grain or two out of 2,000 or 3,000 grains of absolute alcohol swallowed). Consequently it is quite certain that the organism does *not* set up this elimination in accordance with a predetermined scheme for getting rid of the poison, which last has, indeed, to become *non-poisonous*, or less poisonous than it was, by the comparatively indirect process of oxidation within the body, with this mischievous result, that as long as any excess of (temporarily) unoxidisable alcohol remains in the blood more or less narcosis is kept up; that is to say, the nervous centres are exposed to a continuous influence directly tending to their degradation. And in fact the little elimination that does take place is evidently a mere accident. It will be found that it never occurs unless diuresis sets in: and diuresis produced by alcohol will inevitably be found to correspond with a general lowering of arterial tension, which I have no doubt depends entirely upon vaso-motor paralysis. Upon this point I am able to speak with confidence from the results of a very large number of sphygmographic observations made upon myself and others, which uniformly showed that alcoholic diuresis is invariably accompanied by others of the slighter signs of narcosis, and especially often with dilatation of the vessels of the face and ear, and that the tracing of the pulse at the same time decidedly indicates lowered arterial tension. These effects are produced by doses much short of those required to bring about mental confusion, or other signs of obvious intoxication.

It is plain, then, that even the most undoubtedly poisonous doses of alcohol are not got rid of by the way of simple elimination without change. It is *possible* that a certain proportion is devoted to the nutrition of fatty tissues: but in all probability

a comparatively simple oxidation process disposes of the greater part, the chemical results being chiefly increased formation of carbonic acid and water, the other dynamic results being expressed in increased motion (in heart, intestines, glands, &c.).

We thus perceive that the analogy from the supposed elimination of alcohol breaks down entirely. The organism does not free itself from the evil effects of the poison by any process of simply *casting out.* On the contrary, the injurious excess of the agent is disposed of (though with much delay, difficulty, and damage to the organs) in the same manner as any food of the hydrocarbonaceous class. And I may here remark that the case of alcohol, in its relations to the body, offers a striking commentary on the conventional and unphilosophical (though practically useful) character of the distinctions that we draw between "poisonous" and "non-poisonous" substances.

Reviews.

The Science and Practice of Medicine. By WILLIAM AITKEN, M.D. Edin., Professor of Pathology in the Army Medical School. Sixth Edition, greatly enlarged, &c. Two volumes. London: C. Griffin and Co. 1872.

DR. AITKEN'S work on general medicine has enjoyed one of those well-earned successes which fall to the man of courage and intelligence, who, at a critical moment, perceives a want, and makes extraordinarily strenuous efforts to meet it. At the time (nearly fourteen years ago) when the first edition was published, the profession was sorely in need of some general statement of the principles of modern medicine. Copland's Dictionary and the "Library of Practical Medicine," though containing stores of learning, were out of date, and even Watson, with all his charm, was inadequate; in fact, there was no means of obtaining a comprehensive view of the vast change which had passed over the face of medical theory and practice during the previous twenty or twenty-five years. It is difficult for a practitioner of the present day to form any picture to his mind of what he would be without a knowledge of the general tendencies of Virchow's pathological doctrines; of Stewart's, and Jenner's, and Murchison's researches as to fever; of Parkes's investigations as to the effects of diseases, foods, and remedies upon the urine; of the researches of Wunderlich, Aitken, and many others upon the use of medical thermometry, and of a dozen other matters of the highest importance, the most considerable of all, perhaps, being the presentation of the modern views respecting the diseases of the tropics. All honour, therefore, to the courageous industry of our author, who unquestionably performed a service to the profession of the most valuable kind. That it has met with the splendid reward implied by the call for a sixth edition only thirteen years after the appearance of the first, is a new proof of the fact that, after all, solid work always does pay.

It would be gross flattery, of course, to pretend that Dr. Aitken's work represents all departments of medicine with equal excellence. It does not do this; for while some portions show the marks of fresh and original thought, others

are mere examples of compilation; and, as might naturally be expected, there is occasionally a lack of appreciation of the relative importance of individual subjects, which is shown by the fulness or meagreness with which they are respectively treated. That is small blame to the author, however: for a man would be scarcely human who had no predilections for particular subjects, and was not, in consequence, much better informed on some points than on others. At the same time, for the critic, these inequalities are the theme of the most useful remarks that he can make; and having acknowledged in general terms the extraordinary merit of Dr. Aitken's work, we may now devote a few words to a brief indication of its strong and its weak points.

One naturally turns, in the first place, to the subject of inflammation, which has been the theme of such multiplied researches; and here we find abundant illustrations of the author's great merits and of his occasional defects. Speaking broadly, the treatment of this topic by Dr. Aitken is at once elaborate and incomplete; it gives copious illustrations of the views of a number of famous investigators, but it fails to seize the standpoint of the latest and most valuable researches. It gives, for example, an admirable *résumé* of the growth and development of pathological research up to the date of the first issue of the "Science and Practice of Medicine;" but the accounts of later investigations are comparatively meagre and inadequate. Two examples of this will attract the notice of anyone familiar with recent inquiries, viz. the discussion of the significance of the so-called exudation-corpuscles, and the manner in which the researches of Cohnheim on the migrations of blood-corpuscles are referred to. In regard, for instance, to the "exudation-corpuscle," we were certainly surprised to observe that he still regards these bodies as specific cells which, at any rate when developed in the course of inflammation, have an organic growth and decay of their own, and subserve active functions in the removal of inflammatory products. We had thought such a view was quite obsolete, and that the bodies in question were sufficiently proved to result from no more definite process than the accidental aggregation and the rubbish of decaying tissue, so to speak.

But it is with regard to the subject of the exudation of blood-corpuscles that Dr. Aitken's statements are most conspicuously inadequate. Nowhere would it appear from his work that Cohnheim and many other observers regard this migration of blood-cells as *the* essential act in the process of inflammation. Still less is there any hint of the subsequent investigations of Stricker and others, which, while establishing the great importance of the migratory process, assert that an equally important element of

inflammation is the multiplication of the essential cellular elements of tissue. These omissions are the more singular because they almost necessarily imply that the author has not read the remarkable treatise of Dr. Burdon-Sanderson, supplementing Mr. Simon's article on Inflammation, in Holmes's "Surgery," which has now been before the public a considerable time. Moreover, there is evidence, unless we have misunderstood Dr. Aitken, that he even confuses the exudation-corpuscle of Gluge with the migrating corpuscles of Cohnheim.

In the article just cited it must be confessed that the faults outweigh the merits, because the general effect is to a serious extent misleading. It is pleasant, therefore, to turn to a chapter on a very different subject, in which the author's personal sympathies are evidently more keenly engaged, and where the defects are inconsiderable, while the excellences are numerous and great. The article on Asiatic Cholera undoubtedly offers the most clear and satisfactory summary of our knowledge respecting that disease which has yet appeared; it is complete down to the most recent information, and the numerous and complicated discussions that have arisen during late years are summed up in a truly judicial spirit. We have but one fault to find with it—that it deals with the question of treatment in too negative a spirit. We entirely agree with the author's conclusion, that although it may fairly be believed that cholera is produced by a poison, we have no facts to warrant us in supposing that we can cut short the malady by any such process as elimination, and that the old doctrine as to the value of opium (*in the early stages only*) is by far the most serviceable piece of practical knowledge that we possess. But it appears to us that a writer of such high authority as Dr. Aitken, more especially on all that concerns epidemic diseases, might fairly be expected, even at some risk to his ultimate reputation, to have ventured on some general hints as to the line which future therapeutical experimentation should take. It is certainly high time that some of the leaders of the profession should express their opinions on this matter; and for his courage in this regard, while we totally disagree with his conclusions, we think that Dr. G. Johnson is entitled to much respect.

The praise that we give to the article on Cholera may be extended to the author's discussion of all the epidemic diseases; this may be said to be now, as it always was, the strong part of the work. The more important acute diseases are also well described,—pneumonia, plurisy, pericarditis, peritonitis: and indeed we might make the criticism more general, by saying that those diseases are always the most satisfactorily dealt with which would more immediately come within the ken of an experienced military physician. We consider this criticism to

be anything but a reproach; on the contrary, it testifies that the author is a man who does the work which comes to his hand, and improves his own special opportunities. On the other hand, certain classes of subjects are dealt with in a manner which is unsatisfactory, as representing a state of medical knowledge which is behind that of our day. We have glanced through the whole subject of nervous diseases, for example, and cannot avoid the remark that, with the exception of sunstroke (a disease, again, with military associations), there are scarcely any of the articles which represent the most advanced opinions, although there is a good, plain, workmanlike style about them all. And the articles on Nervous Diseases are, in one respect, only rather strong instances of a singular tone which runs through the volume, and which, with all deference to the distinguished author, we cannot help again referring to his military associations. We think that no pathological teacher at a good London school would endorse Dr. Aitken's estimate of the frequency of true *inflammatory* affections of the nervous centres; and we are quite certain that the therapeutics of acute nervous disorders which he teaches are yet more opposed to the practices of London physicians who see much of this class of disorders. To take a good sample, that exceedingly common disease—cerebral softening—is described in a manner which would lead the reader to believe that in a large number of cases it begins as an acute inflammatory affection. This is certainly startling, for in London the physicians of our hospitals have undoubtedly, with few exceptions, come to the conclusion that acute inflammatory softening is the rarest of diseases, an opinion coinciding with the researches of Prevost and Cotard, which we observe that Dr. Aitken does not mention. It was not long since that one of the most distinguished of living pathologists informed us that so rare is the affection that he was occasionally led to doubt whether real inflammation of the brain, *ending in softening*, ever occurred: and the readers of Prevost and Cotard will remember that, while somewhat dubiously admitting the existence of the inflammatory form, these authors really explain almost every individual symptom and post-mortem appearance, that has been supposed characteristic of cerebritic softening, as perfectly capable of being produced by simple interruption of circulation and of tissue-nutrition. Again, in regard to the article on Apoplexy, which certainly wears a more strongly antiphlogistic aspect than one would expect in a treatise of the present day, we cannot but advert to the rather important omission of any reference to the interesting discovery of Charcot and Bouchard, that cerebral hæmorrhages almost constantly proceed from the rupture of small aneurisms, the frequency of which no one had before suspected.

In the few and brief criticisms which we have made, it might almost seem that we intended to convey an unfavourable impression of Dr. Aitken's great work. It would be of little consequence if we had actually done so, for a medical work which has reached its sixth edition can well stand its own ground; but at any rate such an impression is far from that which we should wish to have on the reader's mind. It cannot be denied that, in the press of engagements, and working under the strain imposed by the remarkable rapidity with which successive editions have been called for, Dr. Aitken has failed to bring some parts of the work up to a modern standard, and this he might well rectify in future editions, by the assistance of some able junior. Even as it is, however, he has taken immense pains to make his book complete; and, as the labour of one hand, it must be called a great feat. Practitioners will be especially thankful for much practical information concerning modern modes of clinical observation, which, though the knowledge of them is too often taken as a matter of course, are in reality very little understood by medical men in active general practice. As before, the external appearance of the book is everything that could be desired, with one exception—its most inconvenient and unpleasing corpulence, which drives even men of angelic temper to the verge of swearing, especially when they handle the second volume.

CORRECTION.—We have to apologise for a very unintentional injustice which we have done to Dr. Williams's work on Consumption. We stated that the *arsenical* treatment of phthisis was not mentioned in the work: but this is an error; the treatment *is* mentioned and commented on.

Clinic of the Month.

Treatment of Nocturnal Enuresis and Spermatic Incontinence.—Dr. Campbell Black observes, that with regard to enuresis, the disturbing influence he believes to be generally of a somatic nature; while in the case of its prototype, spermatic incontinence, it may be either psychical or somatic, either of them or both. Enuresis generally occurs at the periods of infancy and declining years, and according as it may so occur its cause admits of different explanations. In childhood it is almost invariably traceable to the irritation of worms, congenital phymosis, calculi or perverted secondary assimilation causing urinary density and acidity. These causes being removed, the sphincter muscle recovers its tone, and a cure is effected. But if the hyperæsthesia have been long continued, a debility of muscular fibre ensues, and a tonic treatment is indicated in addition. In advanced life, the conditions mentioned are generally absent, and the cause of the enuresis is found in enlarged prostate, in general enfeeblement of muscular structure, and in affections of the spinal cord or calculi. Such being the pathology of the affection, Dr. Black has invariably treated it with narcotics and tonics, or rather a particular tonic; and he claims for camphor, opium, belladonna, or hyoscyamus, with the tincture of the muriate of iron, properties inferior in their influence over the bladder to no preparations in the Pharmacopœia. It is indispensable, however, according to his experience, that the tincture of steel be given much in excess of the usual dose. His experience in the use of these agents has been equally satisfactory in cases of spermatic incontinence. Putting aside those instances where it arises from psychical causes, he finds that there is usually a peculiar tender condition of the prostate, in nine cases out of ten, which may be discovered by simply passing a catheter or bougie. It is therefore through the prostatic branches of the sympathetic that this disturbing influence acts. The indications of treatment are consequently obvious, viz. to allay the irritation; and if its long continuance have induced muscular debility, to restore the lost tone. The prostatic irritation may, in most cases, be removed by the occasional passing of a catheter perhaps once a week, or in more

urgent cases by the application of caustic to the prostatic portion of the urethra. He prefers the application of the caustic (nitrate of silver) in the fluid form, but in a very large proportion of cases this supposed extreme measure is not required: to accomplish the object in view, we possess the old medicinal agents above mentioned. (*British Medical Journal*, Nov. 25, 1871.)

Regulation of Temperature in the Treatment of Disease.—Dr. Alexander Robertson, of Glasgow, in a paper on this subject, observes that, amid all the changes in medical opinion regarding the therapeutic value of the agents with which we seek to conquer disease, none have sustained their reputation so well as heat and cold, since these are of universal application, and their power in alleviating pain and in promoting the restoration of health is acknowledged by all. Nevertheless, he proceeds to point out that heat and cold as they are used through the medium of poultices, fomentations, and cooling lotions of various kinds, are not as a rule prescribed with any attempt at precision. To take the case of the poultice, not only does its temperature differ widely, but even when applied as warm as the patient can bear it, before long it parts with its excess of heat. Yet it does not appear that hitherto any exact observations have been made to determine the length of time during which it retains a temperature higher than that of the part with which it has been in contact, and how soon a renewal of the application is required. The practice of medical men affords no certain indications, since some order fresh poultices every hour or two hours, whilst others are contented with having them changed three times a day. Considering these facts, it occurred to Dr. Robertson that in many instances it might be an advantage to maintain these agents at or near the degree of heat at which they were originally applied; and further, that various zones of temperature, so to speak, might not improbably yield different therapeutic results: for instance, those ranging from 140° to 145°, 115° to 120°, 105° to 110°, and others down to the freezing-point, might each be expected to produce effects somewhat dissimilar to those of the others, either in degree or kind, both locally and constitutionally, when continuously maintained for definite periods. To elucidate these points, Dr. Robertson undertook a series of investigations, and in some preliminary experiments he arrived at the following conclusions:—1. That however warm a linseed-meal poultice may be when applied, it will fall in the course of half an hour to within two or three degrees of the axillary temperature; in exceptional cases it may be four or five degrees higher, but in others it will be a degree or two lower. 2. Its loss of heat afterwards becomes gradually slower, so that at the

end of an hour on an average it is not lower than the axillary temperature, and in a very few cases may be a degree or two higher. 3. However long it may be applied, its temperature does not fall more than five or six degrees below that of the axilla. 4. A moist poultice retains its heat somewhat longer than a dry one. With respect to the fomentation, it loses heat more rapidly than the poultice, so that even at the end of half an hour its temperature is lower than that of the axilla. Hence, could it be done without exposing the patient, it is obvious that a frequent renewal of these applications is necessary if the higher temperature of the part to which they are applied is to be maintained; and Dr. Robertson states that he has invented an apparatus by which this may be accomplished. In experiments made with the mustard poultice, in which the mustard was spread on cotton cloth covered with muslin, and applied for half an hour to the front of the chest at temperatures varying from 76° to 98° in cases of bronchitis, Dr. Robertson was led to the conclusion that the mustard poultice excites some of the leading organs to increased action, especially in the more severe forms of disease; and suggests that the morning or early part of the day is the more suitable time for applying it, so that the evening exacerbation so common in acute disease may not be thereby increased. Similar experiments were made with the linseed-meal and mustard poultice. (*British Medical Journal*, Nov. 25, 1871.)

Treatment of Fibroid Tumours of the Uterus.—Dr. Meadows, in a paper read before the Midwifery Section of the British Medical Association, points out the frequency of these tumours, their distressing symptoms, and the ill success that attends their treatment. He considers that, in regard to the absorption or removal of these growths by the administration of drugs in any form, we are utterly and entirely helpless, without a remedy of any kind. Their complications, however, afford large scope for skilful treatment. The relief of pain, the arrest of hæmorrhage, the control of the various discharges which often accompany these growths, the combating of symptoms, due chiefly to mechanical causes, and often giving rise to great local distress—all these, and many other conditions which commonly afflict the sufferer from a uterine fibroid, will tax the ingenuity, patience, and skill of the most accomplished and expert. When the relief of pain is required, he thinks the anodyne should be applied as nearly as possible to the seat of pain, but no greasy substances should be employed. The best anodynes are atropine, morphia, and conia. For the treatment of what may be called mechanical pain, mechanical remedies will be, of course, required in the form of internal or external support. In regard to hæmorrhage, Dr. Meadows thinks no drug excels ergot in its

hæmostatic properties, and in most cases it may advantageously be combined with chalybeates. As a topical application he has found the small solid sticks of anhydrous sulphate of zinc, first introduced into practice by Dr. Braxton Hicks, to be most effective. He advocates more frequent and more decided resort to operative interference in cases of fibroid tumours than is at present adopted. The following propositions express the views on which his practice is based :—1. These uterine tumours are to be regarded as essentially foreign bodies. 2. Nature's method of dealing with such foreign bodies, when fair play is allowed her, is to expel them. 3. In order to do this, a dilated os and uterine contraction are essential. 4. Where these are wanting, it is the duty of the physician to remedy it. 5. In order to do this, the circular fibres of the cervix uteri should be freely divided in several directions, and subsequent contraction of the uterus promoted by every means in our power. 6. Both these measures will be greatly aided by subsequent detachment of the tumour, making it more and more like a foreign body. (*British Medical Journal*, Dec. 2, 1871.)

On Dyspepsia of Liquids.—Dr. Thorowgood records several cases which he considers to be good illustrations of that indigestion of liquids which has been carefully described by Chomel in his work on Dyspepsia. The affection, in its fully developed form, he does not believe is common in this country, though he has met with several cases in the course of the last few years. The following is one of them :—James M'C., aged 30, a pale, dark, intelligent man, came under Dr. Thorowgood's care, complaining generally of dyspeptic symptoms, and specially of the great uneasiness caused by the presence of any amount of liquid in the stomach. Liquids in the slightest degree acid were most distressing to him, and at times he had attacks of sour pyrosis. He complained much of dryness of mouth, with dry skin and costive bowels, urine loaded with lithates, but free from traces alike of sugar or albumen. No loss of flesh ; pulse slow and soft ; nothing irregular to be found in heart or lungs ; no sort of tumour or thickening about pylorus, but on gently vibrating the stomach, fluid was heard splashing about in it, and this sound could be always produced irrespectively of any liquid having been recently ingested. The stomach was much distended. The early treatment of this case consisted in the use of alkalies with bismuth and various bitters, but no improvement resulted : the only noteworthy feature was the effect of a pill of extract of opium at night, which regulated the action of the bowels so completely that the patient asked for the pills as *aperient* pills. It was afterwards agreed that the patient should drink as little as possible, and take no other medicine than a powder of rhubarb

and magnesia every morning. From this time he steadily improved, and after about two months' treatment he appeared to be cured, and was, six months afterwards, still in good health. Dr. Thorowgood considers the dry plan of diet the only one likely to be followed by any amelioration of the symptoms; and until this is tried, no medicine will prove of any service. At times fits of faintness, with irregular action of the heart, are prominent symptoms in these cases of dyspepsia of liquids, the cause being due to the distended state of the stomach. The patient must bear a certain amount of thirst as well as he can, and take but small quantities of liquids at a time, and not drink for an hour or more after he has taken his meal of solid food. Weak whisky and water, sherry wine, and toast and water, are amongst the least objectionable drinks; and sometimes a small cup of good beef-tea, free from any farinaceous admixture, will suit well. One of his patients found a wine-glass of good stout to agree well and relieve his thirst. (*Lancet*, Feb. 17, 1872.)

The Internal Use of Carbolic Acid.—Dr. James Allan, of Newinches, Ayrshire, states that he agrees with many observers as to the beneficial effects of carbolic acid in the fermentative class of dyspeptic cases in which there is flatulence with evolution of gas, with a tendency to vomit. For this it can be administered either in solution, in grain-doses, or in the form of a pill. Thus given it stimulates the stomach, checks the fermentative process, and produces an evolution of gas and evacuation of flatus. In hæmorrhagic ulcer of the stomach a few administrations of grain-doses freely diluted are very efficacious in checking bleeding, provided, as in all cases, due attention has been paid to the diet. Good results have also been obtained in cases of chronic gastric catarrh, especially if some stomachic sedative be first given. It should be given upon an empty stomach, in quarter to half-grain doses, much diluted.

In considering the different processes which take place during the decomposition of the pulmonary tissue in phthisis, on account of the deteriorated state of vitality, it would seem that if an antiseptic could be introduced by any means which would not derange the general functions, the disease might be arrested. From a careful review of the cases recorded in the periodical literature, as well as from the results of practice which Dr. Allan has himself seen, he is certain that when pulmonary disorganization has taken place, carbolic acid has no effect to eradicate it.

In the treatment of certain skin diseases, Dr. Allan believes carbolic acid to be of much use, especially in those of an obstinate nature. Good results have been obtained in psoriasis, pityriasis, and prurigo. It should be administered in the form of pills,

each containing one grain, and from six to nine of these given daily, and gradually increased. In gangrene of the lungs it removes the fœtid odour and seemingly produces good. In chronic bronchitis and oozing hæmorrhages of the air-passages, it is useful; so, also, in mucous diarrhœa of the large bowel, in the form of an injection, when preceded by some alkaline solution. Dr. Allan states that he has met with much success with it in the treatment of mucous tubercles and primary syphilitic sores. He used it in the form of a solution of equal parts of carbolic acid and water once daily, and by the constant application of a lotion of eight grains of carbolic acid to the ounce of water. (*British Medical Journal*, Feb. 10, 1872.)

Treatment of Cholera by Injection with Morphia.—Dr. John Patterson, of the British Seamen's Hospital, Constantinople, states that a recent severe epidemic in parts of Constantinople, and at Hasskien, a village on the Golden Horn, the residence of a large English colony, has given him an opportunity of trying the effect of the subcutaneous injection of morphine on a sufficiently large scale to judge of its value. The first cases were treated by the usual remedies; everything rational was tried, and with the usual want of success. Completely disheartened at the inutility of treatment, he went prepared with the instruments and morphine, and after consultation with his colleague, Dr. Werry, determined to give it a trial. A most unpromising case was selected. The man had been previously suffering from inflammation of the liver, was in deep collapse, pulseless, with rice-water purging, severe vomiting and cramps. Dr. Patterson injected a quarter of a grain of acetate of morphine. The result was beyond his expectations. In a quarter of an hour the cramps and vomiting ceased, the patient fell asleep, the skin gradually became warm and moist, the pulse returned. In two hours he awoke and said he felt much better. The injection was repeated; he again slept for hree hours. The reaction was perfect. He lived three weeks, and sank from typhoid exhaustion, as much produced by his old liver complaint as from the reactionary fever. The same good results followed in almost every case in which it was tried. In ordinary cases one or two injections of from one-quarter to one-half of a grain sufficed. In a few cases three injections were given, and only twice has Dr. Patterson had occasion to give four. It was given even to very young children in doses proportioned to their age and condition. In the milder form, where the purging, vomiting, and cramps were severe, and collapse just commencing, he never wasted time on other treatment. An injection of a quarter of a grain was given, perfect quiet enjoined, and bottles of hot water placed in the bed. The patient fell asleep, and as a rule awoke nearly well. Many cases were thus

nipped in the bud. Dr. Patterson does not, of course, maintain that this treatment is a specific against cholera; he only claims for it that its action is more decided than any other treatment he has seen or practised, and that in the race against death we gain time for further treatment when it is necessary. It is long since Dr. Patterson lost hope of the ordinary treatment influencing much the course of the disease, and after treating more than a thousand cases at various times of epidemic, he is glad to report that this has really been of great service. His colleague, Dr. Werry, speaks equally favourably of the results obtained in his practice. He regrets that want of time prevents him at present from giving the cases in detail, but the subjoined table gives at a glance the main results:—

	No. of Cases.	Recovered.	Deaths.
Treated in the usual manner . . .	10	1	9
Treated by morphine injections . .	42	22	20
Total	52	23	29

But of the cases treated by injection, 8 were perfectly helpless from the first, being *in articulo mortis*, 1 had severe liver complaint, and 1 was far advanced in consumption; so that in reality there were 32 cases where the treatment had a fair chance, reducing the mortality to 10 in 32; and of these 10, 1 was sixty years of age, 1 within three days of her confinement, and 3 hard drinkers.

In reference to the subject of cholera, Dr. Patterson states that he is engaged in a series of experiments on animals, the result of which he hopes soon to communicate. So far as he has subjected dogs to the action of cholera-matter from the human subject, as by injections under the skin, into the rectum, and feeding them with food sprinkled freely with cholera dejections, none but negative results have been obtained. (*Medical Times and Gazette*, Jan. 27, 1872.)

Pathology and Treatment of Pyrexia.—In lectures delivered by Dr. Murchison he maintains the following propositions:—1. That pyrexia is a morbid condition of the blood, due to the entrance of some poisonous matter from without or generated within the body, or to some local injury or inflammation exercising a paralysing influence on certain portions of the nervous system, and particularly on the sympathetic and the vagus. 2. Increased rapidity of the heart's action is one of the earliest results. 3. A second result is a rapid disintegration of the nitrogenous tissues into substances of a simpler chemical construction, while little or no fresh material is assimilated to compensate for the loss. Increased temperature, great muscular prostration, and loss of weight

are the natural consequences. 4. The non-elimination, from any cause, of the products of this disintegration gives rise to cerebral (typhoid) symptoms or local inflammations. 5. The impaired nutrition of the heart itself, and of the rest of the body, in conjunction with the polluted state of the blood and the nervous paralysis already referred to, induces in severe cases of fever great weakness of the cardiac contraction, and stagnation of blood in the capillaries in different parts of the body. In regard to the treatment of pyrexia, Dr. Murchison lays down the following as the principal points that should be attended to:—1. To remove, when possible, the cause on which the fever depends. 2. To promote elimination, not merely of any morbid poison, but of the products of exaggerated metamorphosis in the blood and tissues. 3. To reduce the temperature and the frequency of the action of the heart. 4. To maintain the nutrition of the tissues and stimulate the action of the heart by appropriate food and stimulants, taking care, at the same time, not to excite congestion or increase the work of the already overtasked glandular organs. 5. To relieve dangerous and distressing symptoms. 6. To obviate and counteract secondary complications. It is not always that we have it in our power to remove the cause of pyrexia; but the object is one that should always be kept in view, and sometimes the main efforts of treatment must be directed to secure it, as for example when pyrexia depends upon pent-up pus, an obstructed bowel, or gouty syphilitic or periosteal inflammation. The elimination of any morbid poison may usually be effected by the employment of diaphoretics, diuretics, purgatives, and emetics. The old practice of giving a purgative to unload the portal circulation and promote the action of the liver, is undoubtedly a good one. Salines, as citrate of potash, a plentiful supply of fresh air, and the free use of diluents aid in the elimination of the poison. Amongst the agents for reducing the intensity of the pyrexia are bloodletting, now discarded (though formerly much used), because it was found to increase one of the great dangers of pyrexia, viz. failure of the heart's action; the external use of cold water, formerly recommended by Hahn and Currie, but subsequently and up to a recent time nearly forgotten, but now again extensively employed, especially since Dr. Wilson Fox has recorded cases of recovery by its use when the temperature had risen as high as 110° Fahr., which under other methods of treatment is fatal; quinine in large doses, digitalis, aconite, veratria, and antimony. Quinine has often appeared to Dr. Murchison to be of signal service when a pyrexia was at its crisis, and when the temperature was rising instead of falling. The nutrition of the body should be maintained, not so much by nitrogenous food as by such articles of diet as milk and beef-tea. In regard to dangerous

symptoms, stagnation of blood in the pulmonary capillaries, impeding the aëration of the blood, is to be met by stimulants such as alcohol, carbonate of ammonia, and ether. Digitalis, by strengthening the heart's action, and turpentine, which seems to stimulate the capillary circulation, are also useful under these circumstances; while advantage will likewise be derived from mustard and linseed poultices to the chest and from warm applications to the feet. When uræmic symptoms predominate, the action of the skin and bowels is to be promoted: digitalis and saline diuretics may be given to increase the flow of urine, sinapisms are to be applied over the loins, while attempts may be made to rouse the patient by cold affusion to the head, by blistering the shaven scalp with liquor ammoniæ, and by sinapisms to the feet. Diarrhœa, pain, sleeplessness, and delirium must be treated, when they occur, by appropriate means. Lastly, secondary complications must be counteracted as far as possible, and two errors must be avoided: first, the remedial measures adopted should not thwart the natural modes of recovery or favour the natural modes of death; secondly, pyrexia must not be treated on a purely expectant plan, since the natural termination of pyrexia is death, as well as recovery. (*British Medical Journal*, Feb. 17, 1872.)

Extracts from British and Foreign Journals.

The Value of Circumcision as a Hygienic Measure.—M. J. Moses, M.D., New York, speaks of circumcision as a hygienic and therapeutic measure, and is convinced that the Jews of the enlightened school are inaugurating a dangerous reform in the desire to invade the hitherto inviolability of the Jewish law; and he would impress upon his professional brethren of other creeds the necessity of explaining to their Jewish patrons the value and *safety* of maintaining circumcision, if not as a religious duty, as a hygienic measure, the importance of which probably influenced its institution as a ceremonial law. Dr. Moses remarks, that if the following plan is observed, all danger may be considered as provided against, and need *never* occur, if the surgeon watch his case properly.

1. The amount of tissue sacrificed should be only *just enough* to divide the muco-dermoid junction.
2. The reflected mucous membrane should be carefully adjusted to the cut edge of the dermoid fold.
3. The frænum should not be wounded or lacerated.
4. The wound should be kept open until active bleeding ceases, and the effused lymph has glazed on the line of approximation.
5. The dressing should be the ordinary cold-water dressing, made of very fine linen, lightly applied.
6. The surgeon should visit his patient and renew the dressing two hours after the operation.
7. A careful and attentive nurse, duly warned as to any possible accident, should watch the dressing from minute to minute. The dressing of cold water should be exchanged for one of soft oiled linen the morning following the operation.
8. As soon as the healing has well begun, all dressing should be discarded, and the parts bathed in tepid water after each voidance of urine.
9. The operation should be done by a surgeon, and the condition of the child, as to his ability to undergo the ordeal, submitted to his direction.

To guard against hæmorrhage, even under these circumstances, a reliable styptic, tannin, Monsel's iron, pulv. matico, punk,

cobweb, the so-called alum-iron, charpie, &c., should be left with those who are charged with the care of the child, with careful instructions as to how and under what circumstances it is to be applied. (*The Medical Record*, No. 138, November 15, 1871, *New York Medical Journal.*)

Treatment of Gonorrhœa.—In an elaborate essay on the Pathology and Treatment of Gonorrhœa, Mr. J. L. Milton divides all cases into two classes, those which do and those which do not admit of a plan of abortive treatment. Those adapted for the abortive plan of treatment, are—1. Cases when the patients present themselves before great pain and running have set in. 2. Those who have had gonorrhœa previously, and in whom the present attack does not appear to be very severe. 3. Those cases where the patient is desirous of an immediate cure at any price. In following out this plan it is indispensably necessary that the patient should be able to rest for the entire day after. The patient should make water, and should then be injected with a five-grain solution of nitrate of silver, by means of a syringe with an electro-gilded nozzle an inch and a half long. If no smarting be felt, a ten-grain solution may be injected. The penis may then be bathed in hot water, or a hot bath taken to relieve pain and irritation. Four grains of calomel are to be taken, followed by a seidlitz powder, or citrate of magnesia, every two hours till several loose stools are obtained, and no food should be allowed except a little warm tea or gruel. After every stool the patient should inject with a solution of sulphate of zinc containing from three to five grains in the ounce, and hot fomentations should be systematically repeated. The next day the discharge is usually thin and small in quantity, and in a day or two will have quite disappeared. The abortive plan of treatment is applicable to but very few cases, and Mr. Milton proposes another plan which he considers to be the best adapted for all ordinary cases. This consists in the administration of the acetate of potash in combination with the spirit of nitric ether The best proportions seem to be five drachms of acetate of potash with three drachms of spirit of nitre, and half an ounce of compound spirit of juniper, or two or three drachms of spirit of nutmeg, in a six-ounce mixture. In more severe cases the chlorate of potash may be added; and in those of unusual severity he would begin with it at once. With these he gives a calomel, colocynth, and hyoscyamus pill, or the following:—Pil. aloës et assafœtidæ gr. l; calomel, gr. vj; podophylli resinæ gr. ij; ol. cinnamomi ℥j; ft. pil. xij. Sumat. ij. hora decub. Under this treatment the discharge soon becomes materially diminished, and in forty-eight hours is thinner, less coloured, and more mucous, and these effects are produced with equal

rapidity in long-standing and in recent cases, and in women as well as in men. (*Pathology and Treatment of Gonorrhœa, by J. L. Milton.*)

Abortive Treatment of Gonorrhœa.—M. Ledeganck, of Brussels, has published a memoir containing new researches on this subject. The treatment of blennorrhagia, he says, may be divided into the abortive and the curative. The first attacks the affection at its commencement, and produces a sudden and profound modification of the conditions present in the inflamed mucous membrane, reducing the specific phlegmasia to the state of simple inflammation curable by natural processes. Amongst the means adopted to obtain this effect, nitrate of silver and tannin in solution are the most common. The last agent, however, he has not found very serviceable, at least when dissolved in red wine, in the proportion of three grammes of tannin to one hundred of wine. He has not had much greater success with nitrate of silver in the dose of one to two grammes to thirty of water, and this he attributes, first, to the injection being made at an injudicious period, and secondly, to an improper *modus operandi*. The abortive treatment, he thinks, should not be applied before the inflammation has attained a certain height; and, on the other hand, it is not suitable for the stage of acute inflammatory urethritis. Pathological anatomy should alone enable the precise moment to be determined when the inflammation of the urethra can be abolished by the employment of a caustic. The redness and swelling at the orifice of the meatus have long been considered the objective signs of commencing urethritis. It is, in fact, in the fossa navicularis that the great majority of cases commence, and it is from the examination of these parts that Dr. Ledeganck draws his conclusions as to the right time to apply the caustic. Fifteen or twenty hours after an infecting coitus the vessels of the parts are injected, exactly limited to the frænum, and stopping almost at the borders of the meatus; on the second day the injection has extended to the interior of the navicular fossa. In order to examine this, the lips of the meatus must be separated by introducing a smooth cylinder of thin glass, about the size of a No. 12 catheter. It will then be found that the mucous membrane presents a port-wine hue, which springs from the anterior lip of the meatus and extends down the canal in the form of two or three descending and diverging striæ. On the third day the port-wine tint has become intense, the part so coloured has the form of a myrtle leaf, with the base at the anterior border of the meatus, and the apex about three-fourths of an inch down the passage. The anterior fold of the mucous membrane occupies the position of the median raphe. After the third day the injection extends rapidly

towards the deeper parts, and its limits can then no longer be accurately fixed. Now, M. Ledeganck maintains that the abortive treatment can only be successfully employed from the first to the third day of the attack; in other words, during the period that the local phlegmasia is limited to that portion of the urethra which is accessible to sight. Again, he considers the mode of application not less important than the time. Solutions of nitrate of silver should be eschewed, since their action cannot be limited to the parts affected, and also because they require to be repeated, whereas a single application of the solid nitrate is sufficient. He takes one of the ordinary sticks and envelopes it in a piece of thin tissue paper, which last he again removes from one side, so as to expose a sufficient surface; then glides it into the fossa navicularis to the depth of three or four centimetres, always taking care that the denuded surface of the caustic is directed forwards. It is then gently withdrawn towards the orifice, applying it to the anterior fissure of the mucous membrane. On arriving at the meatus, it is gently rotated to the right and left, and the operation is completed. On examination the navicular fossa is now found covered with a white pellicle, which separates like a true eschar in the course of two or three days. The application of the caustic produces sharp pain, but never occasions any serious accidents. The whole duration of the treatment does not, in general, exceed a week. (*Journal de Médecine, &c.*, Nov. 1871.)

Abortive Cure of Erysipelas with Silicate of Potash.—Dr. Piazza recommends as a local means of effecting the cure of erysipelas, the application of a somewhat concentrated solution of silicate of potash, which should be painted on the part affected in two or three successive layers. Dr. Piazza states that the use of silicate of potash has become quite a common practice in his hospital with excellent results, without having recourse to any general or internal treatment. Dr. Figgioli has obtained equally good results by the same means. (*L'Imparziale*, Dec. 16, 1871.)

Treatment of Diarrhœa in Infants.—Dr. K. Weiser objects to the usual modes of treating diarrhœa in children by means of astringent mixtures, warm poultices on the belly, and injections of mucilaginous fluids; instead, he prefers to envelope the child in a moist cloth, with a warm covering around this: when free perspiration has been induced, the skin is rubbed with a moist cloth. He gives a little coffee and milk with a small quantity of carbonate of soda several times daily. If the temperature of the body has been reduced by these means, cold cloths, changed every five or ten minutes, for some time, are applied, and he prescribes five drops of the solution of oxi-

dulated sulphate of iron four times a day. (*Wien. Med. Wochenschrift*, No. 35, 1871.)

The Electrical Treatment of Tumours.—At a recent meeting of physicians in Vienna, Professor Benedikt referred to the present state of the treatment of tumours in the widest sense of the word by means of electricity. He described in the first instance the technical advances that had of late years been made, consisting on the one hand of the employment of two acupuncture needles connected with opposite poles, instead of the mere percutaneous application of this agent, or the use of a single needle: still more recently, a whole series of needles had been used. On the other hand, progress had been made in applying the current not for a short time only, but persistently by means of batteries possessing even greater activity than that of Siemens, as for example the lead-zinc battery of Frommhold. He exhibited a carbon-zinc battery, the energy of which could be accurately regulated by the fluid employed. The most useful excitant he had found to be concentrated solutions of bichromate of potash and sulphuric acid (1:15).

Inflammatory tumours, as those of the joints, he treated usually percutaneously. It was to be remarked, however, that the current was never applied directly to the seat of inflammation, but to the nerves; as, for example, to the sympathetic, the spinal cord, and the nerve trunks. For direct application the Faradaic currents might be used.

Collections of fluid being the remains of inflammatory processes in cysts and cavities might be most advantageously treated by acupuncture and Siemens' apparatus. Bruns had pointed out that in cases of hydrocele successful result often followed simple acupuncture. Hydatid tumours of the liver had also been treated successfully in the London Hospitals for Children.

Perhaps the point of greatest importance was the application of the galvanic current in cases of *blood tumours*. Angiomata of various sizes had been successfully treated, and not unfrequently at a single sitting. For this purpose currents of "medium quantity" were best adapted, as for example his own battery, the positive needles being introduced and the negative applied percutaneously by means of a sponge electrode, or a few negative needles might be introduced. It is important that they should be passed in at the base of the tumour. Professor Benedikt stated that every form of bleeding, even arterial, could be at once arrested by the introduction of a needle or needles connected with the positive pole. This fact is of great importance in hæmorrhages from wounds, since it is much easier to direct people how to apply the proper elements in the form of

galvano-puncture than to find a surgeon who could undertake the ligature.

Great advances have also been made in the treatment of *aneurisms* by galvano-puncture, in consequence of the improvement of the technical part of the process. Great anxiety was formerly felt in regard to the acupuncture because it was difficult to isolate the needles, and it was feared that the canal left by the needle would form a passage by which the aneurismal sac would communicate with the exterior as soon as sloughing of the walls of the canal took place. Experience has shown, however, that this danger is imaginary, and that acupuncture of the deeper parts can generally be performed without danger. M. Benedikt related a case of fibroma of the uterus, into which he had inserted a long needle without anything more than a circumscribed reaction occurring in the line of the wound. In aneurisms it is advisable to apply a battery which in regard to quantity holds an intermediate position between Siemens' battery and those which are applied to galvano-caustic. It is best also to introduce a series of needles connected with the *positive* pole directly into the sac, though in various works it is erroneously stated that positive needles arrest the progress of coagulation. Speaking generally, however, the positive pole softens and fluidifies, whilst the negative dries up and hardens, so that the former is analogous in its action with alkaline caustics, the latter with acids.

In the next place, electricity can be applied in the treatment of *tumours of the lymphatic glands;* and for this purpose Siemens' apparatus is best applied either percutaneously or by means of a few acupuncture needles which are connected with the negative pole. Grooves are thus formed in the tumours, and they become broken up into several smaller ones, and thus by degrees the whole tumour can be made to disappear. Too powerful batteries should not be employed, lest suppuration and ulceration occur.

In *indolent tumours*, Chvostek has obtained excellent results with this mode of treatment. There are numerous instances also of benefit being derived in cases of *struma.* Percutaneous treatment is here usually applicable. *Cystic tumours*, again, can be effectually cured by the same means as those applied in cases of glandular tumours. In struma as it occurs in the *morbus Basedowii* the application of the current to the sympathetic is usually sufficient, and the results obtained are not to be attributed to the diffusion of the current to other parts, since they occur with very feeble currents maintained for very short periods.

In the treatment of *neoplasmata* Althaus and Groh have been successful.

In *carcinoma* it is usually requisite to act upon the tumour with strong currents, and whilst the patient is narcotised and

insensibility promoted by the injection of morphia, to operate for an hour or longer, since if the action be slow, the tumour may increase at a quicker rate than it is destroyed; indeed, M. Benedikt thinks the application of the electricity may actually accelerate the growth of such tumours. He alludes to a very successful case treated by Dr. Neftel of New York, in which a cancerous tumour the size of an orange was removed in the course of a few sittings, and the cancerous cachexia subsequently disappeared. (*Wiener Medizinische Presse*, No. 53, Jahrgang xii.)

Notes on the Treatment of Small-pox.—Dr. Stokes remarks that if we look at two cases of confluent small-pox, in which the amount of eruption is equal or nearly so, but yet with opposite characters of fever, the chance of pitting seems to be much greater in the sthenic than in the asthenic or typhoid case. From the rarity of the highly inflammatory or sthenic variola during the last quarter of a century, we now rarely see a case of marked pitting. In a case that occurred in 1849, and which Dr. Stokes had under his care, there was great tumefaction, accompanied with extraordinary heat of the face; and in the hope of saving the eyes, poultices were applied over them. The patient recovered, but with deep and permanent pitting; but at the time when the crusts were formed with their usual dark colour, the countenance presented an extraordinary appearance, the integument of each orbital region being free and almost white, while the rest of the face was everywhere covered with deep black crusts. There was no pitting on the eyelids or in their immediate neighbourhood. From the date of this case Dr. Stokes has adopted as a routine practice the application of light poultices over the entire face, or of a mask of lint steeped in glycerine and water and covered with a corresponding mask of oiled silk, and has found with but one exception that pitting was effectually prevented. In that case the patient was delirious and could not be prevented from tearing the poultices off his face. Dr. Stokes believes that if from an early period we protect the surface from the air and keep it in a permanently moist condition, marking will seldom occur. Experience, he thinks, entitles us to hold that, other things being equal, the tendency to pitting, or in other words the virulence of the pustulation, is proportionate to cutaneous vascularity and heat. The above method fulfils three important indications of treatment: 1. The exclusion of air; 2. The keeping of the parts in a permanently moist state, so as to prevent the hardening of the scabs; 3. The lessening of the local irritation. To aid in the latter action Dr. Stokes applies, even after the vesicles have appeared, small numbers of leeches once or twice to the inflamed skin with excellent results.

He records a case showing the great value in the treatment of small-pox obtained by the use of the warm bath. In this case the patient was kept with immense and immediate relief from pain for seven hours, brandy being at the same time freely given. Dr. Stokes states that in the Vienna Hospital under Hebra patients have been kept in the warm bath for 100 hours. (*Dublin Journal of Medical Science,* No. 1, January 1872.)

Use of Phosphorus in certain Diseases of the Skin. —Dr. Eames reports a number of cases in which he has found phosphorus serviceable. The mode of administration adopted was a solution of the metalloid in oil. Ten grains of pure phosphorus were dissolved in one ounce of olive oil, the dose of this solution being from five to ten minims three times a day after meals. It may also be dissolved in ether, or given in a solid form in pills. Some have objected to the use of the oily and etherial solutions on account of their extremely disagreeable taste and smell; but both these difficulties may be surmounted by having the oily solution enclosed in membranous capsules. Dr. Eames has found that the medicine thus given, in doses of one-tenth, one-twentieth, or one-thirtieth of a grain, is much less liable to produce dyspeptic derangements, and that disagreeable eructations are less frequent. The cases he reports include instances of severe acne indurata, lupus, scrofulo-derma, psoriasis, pemphigus, and others. In many cases arsenic and a variety of other treatment had been employed in vain. Dr. Eames has found that phosphorus produces a coated state of the tongue, not unlike the silvery tongue which follows the prolonged use of arsenic. Loss of appetite, mental depression, and bodily weakness also are induced much earlier in some cases than in others, but to be watched for in all cases in which the drug is given. On the earliest appearance of dyspeptic symptoms, Dr. Eames now discontinues its use, and administers some of the mineral acids. Many patients state that some two or three minutes after taking this medicine a pleasant sensation of warmth is felt through the entire body. Dr. Eames has not ascertained that any aphrodisiac effect is produced, though he has frequently inquired after it. A slight diaphoresis is observed occasionally. Diarrhœa was not observed in any of his cases. The amount of urine was slightly increased in some instances; but an analysis made by Dr. Cameron failed to detect any deviation from the standard of health. (Ibid.)

Notes and Queries.

DEPARTMENT OF ANALYSIS AND INVENTIONS.

BRAND AND CO.'S ESSENCE OF BEEF AND CONCENTRATED BEEF-TEA.—The essence is sold in bottles holding about 5ʒ, at 2*s.* 6*d.* the bottle. It is in the form of a pale jelly, and professes to consist solely of the juice of the finest beef, extracted at a gentle heat, without the addition of water, &c. &c., and is said to be free from gelatinous elements. This latter statement is certainly a strange one, seeing that the essence is actually in the form of a jelly. Now, it cannot be too emphatically stated that pure extract of meat, free from gelatinous elements, never gelatinizes, whatever be its state of concentration; but as long as it contains any water at all it forms a more or less soft pasty mass. All essences of beef which gelatinize are therefore not pure extract. The analysis of this essence, given below, shows that it contains only 8·15 per cent. of solids (all the rest being water), and of these about 3·6 per cent. is gelatine, or rather more than three times as much gelatine, in proportion to the true extract (4·4 per cent.), as beef will yield. The gelatine has little or no nutritious qualities, needlessly augments the bulk, spoils the keeping qualities, and, as it has to be paid for at the price of true extract, is certainly very dear.

The concentrated beef-tea is in the form of a sausage, and is sold at 8*s.* the pound. It is a soft gelatinous solid, containing 54·5 per cent. of water, and 45·5 per cent. dry solids. Of the latter no less than 35 per cent. is gelatine, and 10·5 per cent. is true extract. This is about fifteen times more gelatine, in proportion to extract, than beef will yield, and the greater proportion of it must apparently have been added.

Taste and flavour of both preparations are good, but this is a point which must be separately considered, and has nothing to do with their value as concentrated food, in regard to which both preparations stand low, whether we regard the amount of

true extract contained in a given bulk or weight, or the amount of such extract obtained by a given expenditure of money.

	The Essence.	The Beef-tea.
Combustible matters	6·89	42·80
Mineral „	1·26	2·67
Water	91·85	54·53
	100·00	100·00

The solids consist of:—

	Parts.	Parts.
Gelatine	3·6	35·1
Extract soluble in spirit.	3·31	7·58
Extract insoluble „	1·23	2·77
And contain nitrogen	1·2	7·33
„ chlorine	0·122	0·569
„ phosphoric acid	0·342	0·759

It is only fair to add, that several practitioners of experience have reported to us very favourably as to the effects of Brand's preparations. We were therefore somewhat surprised at the results of actual analysis.

CORRESPONDENCE.

BLEEDING FOR ENGORGEMENT OF THE RIGHT SIDE OF THE HEART.—Dr. Ringer sends us the following note:—

"The recent employment of bleeding in engorgement of the right side of the heart from emphysema and bronchitis, induces me to send you the following remarks.

"For some years I have employed purgatives to produce three or four watery motions in these cases with considerable benefit, and I think I may say, without any exaggeration, that by this treatment I have saved several lives. Dr. Graves, I believe, was the first to employ this treatment.

"Like bleeding, free purging unloads the distended and therefore weakened right heart, but it also produces a very favourable change in the character of the expectoration, rendering its expulsion easier. My remarks will be clearer if I quote a case, one among several similarly benefited by free purging.

"A woman, about 40 years of age, suffering from emphysema, was seized with severe bronchitis. She had been dangerously ill about a fortnight: her skin was of a deep leaden tint; her eyes were prominent, congested, and suffused; her jugular veins were greatly distended; the surface of her body was covered with a

cold, clammy perspiration, profuse on her face; her extremities were deadly cold; her temperature varied between 97° and 98° Fahr. She suffered from slight delirium both night and day; her breathing was hurried, and her chest expanded only slightly; her expectoration was abundant, viscid, airless, and purulent; her pulse was large, but very compressible, varied from 96 to 100 beats in the minute. The respiratory sounds were obscured by an abundance of mucous rhonchus, and physical examination showed that the right side of her heart was greatly distended. Her urine contained a trace of albumen; her legs were not œdematous. She was so dangerously ill that her death was confidently expected. She was freely purged with jalap and bitartrate of potash, and in a few hours her jugular veins became much less distended, and next day they were natural in size; while the deep leaden tint of her skin disappeared, being replaced by a diffused bright red colour often witnessed in cases treated in this way; this colour being probably due to the capillaries—previously distended by the obstructed circulation, till being weakened they lose their power to contract—becoming filled with arterial instead of venous blood. This bright red colour was most marked over the face and hands; her skin became warm, though she continued to perspire freely, and her hands easily grew cold on exposure. She felt much relieved. In twenty-four hours the expectoration became slightly aërated, this change being much more marked on the following day, when the expectoration was observed to be less purulent, and to contain much mucus. On the third day the expectoration was frothy, and consisted chiefly of mucus; coincidently with this improvement in the sputa, her chest expanded more perfectly and the rhonchus diminished. From this time she steadily improved, and was discharged cured.

"It not uncommonly happens that the engorgement of the right heart with general venous congestion returns, when it becomes again necessary to purge; indeed, several purgings may be required. It will rarely happen, I believe, that the venous congestion cannot be removed temporarily by this treatment.

"The change in the expectoration sometimes occurs more slowly than in the foregoing case, a week elapsing before it becomes frothy and composed of mucus. If the expectoration shows any tendency to assume its old characters, this relapse can be prevented by a repetition of the aperient.

"I have never bled a patient in the condition above described, but I should expect that purging weakens less than bleeding, while purging would probably meet with less objection than bleeding on the part of the patient and his friends."

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The Causes and Treatment of Lateral Curvature of the Spine. By Richard Barwell, F.R.C.S., &c. &c. London: Macmillan & Co. Price 4*s.* 6*d.*

[1] Any of the foreign works may be procured on application to Messrs. Dulau, of Soho Square, W.C.; or Williams & Norgate, of Henrietta Street, Covent Garden, W.C.

THE PRACTITIONER.

APRIL, 1872.

Original Communications.

ON RISKS ATTENDING THE USE OF CERTAIN EXTERNAL APPLICATIONS OF THE PHARMACOPŒIA.

BY EDAWRD B. GRAY, M.D.,

Physician to the Radcliffe Infirmary, Oxford.

PRACTICE has perils for the physician as well as the surgeon. Probably the commonest of these are mishaps with certain medicines and medical appliances which one has practically no means of foreseeing. The following cases show that the exercise of (what I believe was) average care in the use of a certain class of remedies may yet be attended with very unexpected and mischievous consequences.

A healthy-looking young woman was recently under my care in the Radcliffe Infirmary for insufficient menstruation, with some degree of general weakness and troublesome intercostal neuralgia. She had never suffered from any skin eruption. As a local application in such cases I usually employ the emplast. belladonnæ; but in this instance, for no particular reason, I ordered the emplast. calefaciens. The plaster, about 6 by 4 inches, somewhat relieved the pain, causing only moderate smarting and itching of the skin, till the eighth day, when so much soreness was complained

of that the plaster was discontinued. The skin beneath was red and infiltrated, but not blistered nor exuding. On the tenth day this erythematous condition of the skin had spread about an inch and a half in every direction beyond the limits of the plaster. In addition to this, the face and neck were covered with an abundant dull red rash, much like that of measles at its height; and both eyes were nearly closed from effusion into the lids. Numerous little isolated erythematous patches skirted the margins of both seats of eruption (on face and on side), so that, although no actual continuity existed between the two, their anatomical identity and mutual relation were beyond doubt.

Meanwhile—since the fifth day after the plaster was put on—she had had severe daily frontal headache, to which was now added rather sharp febrile disturbance with diarrhœa. In three or four more days the inflammation of the skin at both places had subsided, but troublesome headache remained for another fortnight. Throughout there was never any complaint or sign of irritation of the kidneys or bladder.

In 1868 a young woman was under my care in the Radcliffe Infirmary, in delicate health, and with suspicion of incipient phthisis. Some medium crepitation which had been heard for two or three weeks at the base of one lung, after clearing up, left behind it a chronic pain in the side, for the relief of which on her leaving the Infirmary I ordered an emplast. calefaciens, 5 by 3 inches. She had no eruption about her at the time, nor, as I afterwards learned, had she ever had any. At the end of a week she called to say that "the plaster smarted a good deal, but she thought it was doing good to the side." Under these circumstances I did not examine the skin, and left the plaster on. Three days later (Dec. 1), she complained so much of its smarting that I was sent for to see her, and found, to my dismay, that it had completely blistered all the part it covered, and further, that it had caused considerable inflammation of the skin beyond its own limits. After removing it I dressed the raw surface with lint spread with spermaceti ointment, hoping this would soon allay the irritation. She was kept in bed, and as the sore suppurated very freely, a liberal diet was given with moderate allowance of stimulants. On Dec. 5, the sore discharged profuse greenish offensive pus, and for rather more than twenty-

four hours she had rather alarming symptoms of prostration, viz. great chilliness, pallor of surface, with livid lips and nails, and small thready pulse. Next day, slight reaction, and a dusky erythematous rash, with much itching and burning over face, neck, arms, and upper thorax. Dec. 7: High fever; the eruption spreading and rapidly becoming eczematous; numerous large vesico-pustules around the primary skin-lesion at the side. Dec. 10: The whole upper half of trunk covered with acute eczema, the exudation from which was for some days the most profuse I remember to have seen. At the end of about three weeks the skin had got quite clear, except the usual amount of desquamation which follows an acute eczema, and a tendency to pustulation here and there about the outskirts of the blister. Throughout the attack there was never any symptom of kidney or bladder irritation, nor any fresh kindling of lung-mischief.

These two cases illustrate the constant watchfulness needed in the use of an ordinarily mild cutaneous irritant such as emplast. calefaciens, while the sequence of events in each raises an interesting question in regard to cutaneous absorption. We have to deal with (1) a local lesion due to a local irritant; (2) supervening upon this, severe constitutional disturbance accompanied by an exanthem. What was the relation between the two?

The constitutional disturbance and the secondary eruption *may possibly* have been caused by absorption into the blood of one or more of the irritating ingredients of the plaster—cantharides, perhaps, which forms a component in the proportion of one in twenty-five. Against such a view is (1) the fact that in the first case the skin, though inflamed, was never broken or blistered, *i.e.* presented all along a surface unfavourable to absorption; (2) the absence in each case of any appreciable specific influence of the cantharides on the urinary system; (3) the general impunity in this respect which attends its endermic use in even stronger proportion and over larger extent of surface, as, for instance, in the blister-treatment of acute rheumatism.

It seems to me much more likely that no absorption took place at all, but that the systemic disturbance and secondary eruption were reflex phenomena following severe local irritation in persons of morbidly high reflex susceptibility—just as febrile disturbance and skin eruption are often the accom-

paniments of inflamed gums in delicate, *i.e.* easily vulnerable, teething children.

I have had an unlucky accident attend the use of a plaster far less irritating than the emplast. calefaciens, viz. the common emplast. picis. A woman who suffered much lumbar pain from a large fibrous uterine tumour, once asked me to prescribe for her a pitch-plaster. Seeing no reason why I might not humour her wish, I ordered a pitch-plaster about 8 by 5 inches, which she put on across the loins. At the end of about thirty-six hours it had raised a fine blister over almost the whole surface of contact. Suspecting some mistake had been made by the dispenser, I took the plaster away with me, but after careful examination and inquiry was satisfied (though I failed to convince my patient) that it was genuine emplast. picis and nothing else.

I conclude with a caution about the linimentum crotonis of our Pharmacopœia (ol. croton. 1, ol. cajeput. and sp. vini rect., of each 3½). It is too strong for ordinary safe use. Three times have I seen a *single* inunction of it produce over the whole surface of contact intense erythema of skin, with a profuse crop of vesico-pustules. The latter in one case coalesced, and formed a large scabbing sore which proved troublesome to heal. In neither of the cases was there anything to lead one to suspect beforehand any exceptional sensitiveness of skin.

EXPERIMENTS ILLUSTRATING SOME OF THE PHYSIOLOGICAL AND PATHOLOGICAL ACTION OF HYDROCYANIC ACID.

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IT has generally been admitted by physiologists that death from hydrocyanic acid and the cyanides was caused by paralysis of the muscles concerned in involuntary respiration, thus producing asphyxia. Death generally occurs in warm-blooded animals almost immediately after the absorption of the poison, or in from three to five minutes after its administration.

MM. Bergeron and Ollivier, in the *Journal de Physiologie* (tome vi. p. 46), state "that it is not by its action on the nervous system that hydrocyanic acid destroys life, but that animals die *asphyxiated* after the administration of this poison."

They also hint that the vapours of the prussic acid respired and mingled with the blood prevent hæmatosis, the blood-globules becoming granular, deformed, and crenated. They also affirm that the cyanides poison the blood, heart, and muscles, destroying post-mortem contractility, *i.e.* irritability of the muscular fibres.

The purpose of this article is simply to consider whether death in poisoning by prussic acid and the cyanides is due to paralysis of muscles concerned in respiratory movements. The subject of blood-poisoning—or, in other words, of the alterations in the physical condition of the blood-corpuscles—is postponed for a future occasion.

The experimenter can never attempt to state definitely the "*causam mortis*," but at the same time he can point out and explain certain physiological symptoms (if we may so use the term) which precede death. The advantage to the physician and to

the world at large will accrue from the fact that, time being no longer wasted in attempting to relieve certain symptoms caused by lesions which may be beyond our reach, immediate efforts may be made to assist Nature in her serious and often fatal struggle with death; this fatality being, perhaps, often increased by the very agents employed to relieve the intoxication of the drug. I would refer, for instance, to the use, as a stimulant, of strong ammonia, by which the difficulty of respiration may be increased, and to the employment of the stomach-pump after the appearance of strong tetanic convulsions, by the insertion of which may be induced a further embarrassment of the respiratory functions.[1]

It is of the utmost importance that the respiratory and circulatory functions should be maintained, and means to that end must be instituted.

To illustrate the uselessness of the artificial respiration in cases of poisoning by hydrocyanic acid, the details of the following experiments are given:—

I. *Administration subcutaneously to a dog* (20 *lbs. weight*), *of acid. hydrocyanici diluti* (U.S. P.) gutt. xv.—*equivalent to about* 3-10*ths of a grain of the anhydrous acid. Maintenance of artificial respiration without ether for the space of about half-an-hour when death occurred.*

After performing tracheotomy without the use of ether, a flexible tube was inserted in the trachea, and the above dose was then introduced subcutaneously on the inside of the left thigh. In the course of half a minute, symptoms of prussic acid intoxication, such as embarrassed respiration and muscular twitchings, were observed. Artificial respiration was immediately commenced with a machine constructed for that purpose, and maintained at from eighteen to twenty inspirations per minute. During the next half-hour slight symptoms of muscular spasm were only twice observed, and were each time entirely relieved by more rapid movements of the bellows.

[1] I would except, however, here, the case where there is ground for strong suspicion that a considerable portion of the poison remains yet unabsorbed in the stomach.

There was no dilatation of the pupil nor protrusion of the eyeball. The surface of the skin grew gradually cooler, the cardiac pulsations weaker and more frequent, and sounds of coarse mucous râles became quite distinct over the thorax. As soon as the cardiac pulsations could no longer be felt (in about twenty-two minutes), the thorax was opened, and the right lung was found contracting and expanding regularly in accordance with the working of the bellows. The left lung did not fully expand, owing to the fact of the tracheal tube having been pushed down the trachea below the point of bifurcation, thus causing most of the air to be driven into the right lung.

Post-mortem Appearances. — Ecchymotic spots were quite marked in the left pulmonary tissue, being but slightly so on the right side, and this only in the posterior portion of the lung. (The dog was lying on its back.) As soon as the artificial respiration was discontinued, the ecchymosis gradually increased. The heart-walls were found relaxed, the right ventricle contained dark fluid blood, the left ventricle bright red arterial blood, and both auricles were also full. The blood which oozed from cut pulmonary tissue was bright red. The lower and posterior portions of the left lung were slightly œdematous. The calvaria and the brain membranes were slightly injected. No muscular rigidity had occurred during three hours after death, and the body was then thrown away. The peculiarity of the early appearance of the rigor mortis after death from prussic acid has been particularly mentioned by M. Tardieu.

It is well known that death, in the poisoning of the lower animals by curare, is delayed so long as artificial respiration be maintained; and in most cases the animals may even recover in this way from the effects of the poison; while, if artificial respiration be not maintained, the animals die.

Again, it is well known that cold-blooded animals, especially amphibia and fish, exhibit but slight susceptibility to cyanic intoxication. The action of this poison upon the horse, the hyæna, and perhaps the Ruminants, is much more feeble than upon other species, especially the Carnivora.

Inasmuch as death follows more slowly after the absorption of this drug in those animals which respire mainly by the skin

than in those which respire mainly by the lungs, it occurred to the writer that perhaps the maintenance of artificial respiration might likewise, in the latter class, delay death after the absorption of prussic acid. Following this suggestion, the foregoing as well as the following experiments were devised; and if these are carefully noted, it will be seen that this presumption is not correct, and that the asphyxia noticed in connection with the use of this poison is a secondary rather than a primary effect. They also prove that, contrary to the hint held out by MM. Bergeron and Ollivier, asphyxia is not the real cause of death; for, though this symptom be relieved, the animal dies even after the administration of a small dose of prussic acid. It may also be noticed that the post-mortem appearances are not precisely the same in those cases in which artificial respiration is used as in those where no such means are employed.

II. *Administration subcutaneously to a dog* (30 *lbs. weight*), *of acid. hydrocyanici diluti* (U.S. P.) gutt. xv. *Artificial respiration maintained for about half-an-hour. Post-mortem muscular contractility and nervous conductibility from the stimulus of induced current of electricity.*

Tracheotomy was performed after etherization by chloroform and ether administered on a sponge. As soon as the first symptoms of recovery from etherization[1] began to appear, acid. hydrocyan. dil. gutt. xv. was injected under the skin on the inside of the thigh. In less than a minute, symptoms of embarrassed respiration were observed, and as soon as they became more marked artificial respiration was commenced by means of the same apparatus used in the preceding experiment, and was continued for twenty-five minutes. At the end of twenty minutes from the moment of injection of the drug, the pulsations of the heart could no longer be distinguished.

The thorax was then opened. The heart was found flaccid and still; the right auricle and right ventricle were both filled with dark blood, as were also the superior and inferior venæ

[1] Neither prussic acid or the cyanides cause any symptom of cyanic intoxication, if administered to an animal thoroughly etherized, until the commencement of recovery from etherization. Along with the symptoms of recovery from ether appear the convulsions produced by the cyanides, and these are followed by death.

cavæ; the pulmonary veins, the left auricle, and the left ventricle, all contained bright-red blood.

During the maintenance of artificial respiration after the thorax was opened, the lung-tissue showed a light pink colour during inflation, becoming of a paler tint during the process of exhaustion.

At the end of twenty-five minutes from the moment of injection and five minutes after the cessation of cardiac pulsation, the induced current of electricity was applied, with one pole at the base and the other at the apex of the heart. This was followed by irregular contractions and dilatations of both ventricles, and by rapid and systematic contraction of the left auricle, which continued for a moment or two after the removal of the electrodes.

On again being applied, electricity was followed by the same movements, and this response to the current continued for about twenty minutes, gradually becoming weaker and weaker on each re-application of the poles. Muscular contractility could be excited for over an hour and a half after the thorax was opened, either by applying the electric stimulus to portions of nerve isolated on glass rods, or by touching the muscular tissue itself.

The liver appeared congested, and on making a cut in it a large quantity of dark venous blood flowed from the incision, which on exposure to the air became bright red, but did not coagulate for some minutes. The right ventricle when opened contained greyish black blood and partially formed dark-red clots, while the left contained bright-red fluid blood and a small clot.

The lungs did not readily assume the congested appearance usually noticed after death from prussic acid intoxication or asphyxia, and it was only after being handled and squeezed that the lung-tissue displayed patches of static congestion, which was even then but slightly marked.

It is hardly necessary to remark on the state of the heart contractions as they were before death occurred, for this was almost exactly similar to that observed in the two other experiments narrated.

No convulsion nor the slightest suggestion of spasm of the

muscular system, either general or local, was observed in this experiment. There was neither dilatation of the pupils nor protrusion of the eyeballs.

III. *Experiment with artificial respiration after cyanic intoxication on a small dog (weight about* 18 *lbs.*).

Tracheotomy was performed under the influence of ether; a tube was inserted in the trachea and connected with apparatus for maintaining artificial respiration. Administration of ether was discontinued; and on the return of consciousness, acid. hydrocyan. dil. (U.S. P.) gutt. xv., the same quantity as in the two previous experiments, was subcutaneously injected on the outside of the thigh.

Symptoms of poisoning appeared in the course of a minute, when artificial respiration was instituted and maintained at the rate of twenty inspirations a minute for the space of half-an-hour. During this time only three slight convulsions were observed; death occurred gradually, without any struggle; there was no dilatation of the pupils, and no protrusion of the eyeballs. The heart continued its pulsations, gradually growing feebler and more rapid, for twenty-five minutes, when they could no longer be perceived.

The thorax was then opened, exposing the thoracic viscera. The right auricle was strongly contracting and dilating; each lobe of the lungs expanded and contracted in correspondence with the stroke of the machine for maintaining artificial respiration. As the lungs became inflated they acquired a bright roseate hue, and on being exhausted became pale and exsanguine. No ecchymotic spots were anywhere to be seen on the surface of the lungs. The blood from the arteries cut during the *exposé* of the thoracic viscera, was bright arterial red; that from the veins had a dark venous tint; the ventricles of the heart were flaccid and full of blood. This condition of the viscera continued so long as the artificial respiration was maintained.

On opening the heart the right ventricle was found filled with dark, the left with bright red blood.

Immediately following the cessation of artificial respiration, ecchymotic spots became noticeable on the surface of the lung-

tissue, and gradually extended, until, in less than a minute, the peculiar ecchymosis of the lungs observed in animals dying asphyxiated became evident, though not so marked as when artificial respiration had not been used. The right auricle had ceased its pulsations about the time of the cessation of the artificial respiration. No muscular rigidity occurred during the six hours succeeding death. In this experiment artificial respiration was not continued after cessation of the cardiac pulsations.

By a close attention to these experiments, it may be noticed that the static congestion of the lungs was probably due to the fact that, after the expulsion of air from the lung-tissue, the dark-red blood gradually settled from the heart back into the empty vessels; for when the lungs were artificially made to inspire and exhaust air, the blood became aërated and found its way out of the more minute pulmonary capillaries into the surrounding tissues; the artificial respiration was continued for a moment or two after the *vis à tergo* (pulsation of the heart) had been arrested. In such a case as this the static congestion would naturally not occur in a very marked degree, and the rapidity of its occurrence would be proportionate to that of the infiltration of blood about the ultimate ramifications of the vessels, most probably in the more dependent portions of the pulmonary tissue.

These three experiments above narrated were corrected by a fourth experiment, in which a dog, weighing over 42 lbs., was poisoned by gutt. xxx.[1] of the same specimen of hydrocyanic acid solution used in the other experiment. It is unnecessary to repeat in detail all the train of symptoms presented, for they were similar in character to what is generally known in cyanic intoxication. Suffice it to remark, that death occurred in twelve minutes from the moment of hypodermic administration, preceded by the usual convulsions; that rigor mortis supervened in less than three hours after death; and that the post-mortem appearances were identical with those described by Taylor, Tardieu, and other observers.

[1] Equal to a little more than half a grain of anhydrous acid.

SUMMARY.

If these experiments are considered only in the particulars thus briefly presented, the following summary of the pathological effects of prussic acid naturally occurs:—

1. Artificial respiration does not prevent the intoxication of prussic acid, nor does it materially assist in the elimination of the poison; consequently, means directed to the institution of artificial respiration in cases of poisoning from this drug are unnecessary for the protection of life.[1]

2. Artificial respiration will prevent the occurrence of convulsions, or of muscular spasms which follow the absorption of this poison in a dose of sufficient quantity to endanger life.

3. Muscular irritability and nervous conductibility are not impaired by the intoxication caused by this drug in cases where artificial respiration has been maintained, until after the cessation of the cardiac pulsations.

4. The static congestion of the pulmonary tissue is either a post-mortem symptom, or is due to the asphyxia which has been considered by some experimenters as one of the causes of death in cases of poisoning by prussic acid.

5. Death by this agent is due to some other cause besides asphyxia; and it may be suggested that the fundamental cause is a state of blood-poisoning, due to some alteration of either the physical or the chemical condition of the blood: which of the two, it is not our purpose here to discuss.

6. The apoplexy in the encephalon and spinal cord noticed by Tardieu[2] as an anatomical lesion due to the intoxication produced by this agent, is probably referable to the asphyxia, secondarily induced, and not to the direct action of this poison. The same condition has been observed in animals dying from asphyxia produced by other[3] causes, as by nitrous oxide[4] and

[1] Ammonia may stimulate the capillary circulation; but if this is the object desired, it could more advantageously be carried out if the solution of ammonia were directly introduced into the circulation by the hypodermic syringe.

[2] Tardieu, "Etude Médico-légale et Clinique sur l'Empoissonnement," p. 1036. Paris: J. B. Baillière, 1867.

[3] Tardieu, "Etude Médico-légale sur la Pendaison," pp. 260, 307, &c.

[4] "New York Medical Journal," August 1870, p. 17.

by chloroform. When asphyxia is not present in a case of poisoning from prussic acid, no very marked apoplexy or congestion is noticed *post mortem.*

There are some points connected with the preceding experiments worthy of notice, the discussion of which would exceed the limits of the present article. Without attempting to enter very fully in its discussion, attention is simply directed to one of these points.

It is generally[1] supposed by toxicologists that rigor mortis ensues very early after death from hydrocyanic poisoning, viz. within two or three hours; whereas, in the three experiments above detailed, the phenomenon did not occur for several hours subsequent to death.

Brown-Séquard and Stannius, working independently of each other—the former at Paris, the latter at Rostock—discovered that in the living animal muscular rigidity, similar in every respect to rigor mortis, could be induced in the lower portion of the body within two or three hours after cutting off from those parts their supply of arterial blood. These two experimenters both considered that rigor mortis ensued as the final vital effort of muscular contractility. They found that by supplying with oxygenated blood the muscles affected with rigidity, the spasm could be relaxed, and would so remain as long as this artificial supply was maintained, even though the temperature of the injected blood was 20° Fahr. below the normal temperature of the living animal.

In men killed suddenly by some accident, such as by a bullet penetrating the brain, after a period of active muscular exercise, muscular rigidity ensues[2] within a remarkably short time after death; also in persons dying from the effects of an exhausting disease, as phthisis, or after convulsions, rigor mortis usually occurs within a short time after death.

In men and animals previously in good health, suddenly killed by a poisonous dose of strychnia and prussic acid, rigor mortis sets in quite speedily after the cessation of life. May it not be that a carbonization of the blood, an engorgement of

[1] Tardieu, op. cit.

[2] John H. Brinton, M.D., "Amer. Journ. of the Med. Sciences," Jan. 1870, p. 87 et seq.

the vascular system with deoxidized blood, predisposes to the early appearance after death of the rigor mortis?

In my experiments there was little, and in one case no tendency to convulsions previous to death, nor was death preceded by muscular spasms. Was this not due to the maintenance of artificial respiration until the cessation of cardiac pulsations?

Dr. Brinton does not assert that the muscular rigidity occurring instantaneously after violent death from bullet wounds penetrating the brain is the same as that generally known as rigor mortis. He mentions, however, that "cadaveric rigidity occurs in animals hunted to death or which have died from fighting." In such cases a great degree of muscular activity consumes the oxygen in the blood; and when death occurs, the blood is to a greater or lesser extent deoxidized. Prof. Brown-Séquard[1] shows most conclusively that the early appearance and short duration of rigor mortis depend upon the diminution of muscular irritability. Consequently the early appearance of rigor mortis after death from poisons causing convulsions is undoubtedly due to the diminution of muscular irritability from over-exertion and exhaustion during the convulsions. If these convulsions are prevented by artificial respiration, muscular irritability will last longer after death, and the rigor mortis be delayed.

[1] Croonian Lecture, "Proceedings of the Royal Society," May 16th, 1861.

NON-PURULENT FLUID IN THE CAVITY OF THE TYMPANUM.

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THE previous history of cases when there is evidence of the presence in the tympanum of non-purulent fluid is generally that of an attack more or less severe of catarrh of the middle ear. One of the earliest symptoms is some Eustachian obstruction, which usually subsides in a few days, the lining membrane of the Eustachian tube returning to a healthy state, and the lining membrane of the tympanum apparently ceasing to secrete in excess. Within the tympanum there remains a certain amount of secretion. This, from the nature of the secreting surface, will be generally of a mucous character. Supposing recovery to take place, this is said to be absorbed; at any rate it disappears and gives no inconvenience. Left without treatment, as a rule a very short time only elapses before this gradually loses its watery consistence, becomes more and more viscid, until at last whatever remains is a dried mass assuming the various forms and occupying the several positions which have been described as being found after death. At any of these stages the conduction of sound through the tympanum may be interfered with.

So long as the secretion is more or less fluid, this state of things is capable of complete recovery. The cases at present under consideration, and which I believe are not at all common, are those in which the drying-up process, so to speak, is prolonged for a considerable time, or does not take place at all. Belonging to this class is a morbid condition very rarely seen, but which when it does occur is not difficult to recognise. An account of it has been given by Dr. Adam Politzer, of Vienna, under the head of

"An Accumulation of Serum in the Tympanic Cavity," and is referred to by Mr. Hinton in the Guy's Hospital Reports of 1869. Whether the secretion be, strictly speaking, of a serous nature or not, it is at any rate of a more or less watery consistence, and altogether different in its character from the tenacious mucus which is the most ordinary form. The peculiar features of this affection will perhaps be better appreciated by relating a case of this kind which came under my notice in June 1870, than by a general description.

A man, aged forty-five, gave the following account. He had been very deaf in the right ear as long as he could remember, and so had been accustomed to depend altogether on the left ear, the hearing of which he regarded as being, although never very acute, still sufficiently so as not to inconvenience him by any noticeable deafness, and to permit of his indulging in a taste for music. The left ear had in this way been most extensively exercised, and he could appreciate the smallest variations in tone. At no time within his recollection could he ever hear the tick of a watch excepting when close to the ear. This power of hearing some sounds perfectly, such as music or conversation, existing with an inability to hear others, such as the tick of a watch, &c., is not very uncommon, and was markedly shown in this case. Three weeks before I saw him, he awoke one morning with a slight cough, and was violently sick for some time. While he was dressing, he observed that he was rather deaf to conversation and general noises going on around. The hearing became worse, till in a few days he was much troubled and inconvenienced by it. On examination I found the vibrations of a tuning-fork were heard well, when it was placed on the vertex, and somewhat louder in the left ear. This symptom taken by itself would of course indicate some interference with the conducting part of the ear on that side. The watch could be heard when in close contact with the ear. There was no tinnitus. The tympanic membrane had the appearance of health, with the exception perhaps of a little more than usual prominence of the short process of the malleus; the lustre and translucency were unimpaired. The Eustachian tubes were both pervious, and when he inflated the tympana on the Valsalvian method, the air could be heard through the otoscope to impinge

on the membrane with a healthy sound, thus being quite different from the squeaking sound heard when there is an excessive secretion of mucus. On reflecting light down the speculum while he was practising this experiment, I saw the most distinct appearance of fluid running slowly down the interior surface of the membrane. I can compare it to nothing better than drops of water collecting and running down a pane of glass that is being rained upon. After using Politzer's method of inflation, the fluid seemed to be dispersed into drops and bubbles, and then to collect again and roll down. The hearing was increased considerably after this, but the improvement only lasted for two hours, at the end of which time he was deaf as before. After lying down for a few minutes with the head on the same level as the body, he could hear nearly as well as usual, but became deaf again when the head was raised and he sat up. If he shook his head and then hung it downwards as he sat in a chair, he could also hear pretty well. Thus, when the fluid in the tympanum was in certain positions, the hearing was not interfered with; but in the attitudes assumed in ordinary life, such as in standing and sitting, its presence had the effect of impairing the hearing. The tympanum on this side (the left) was thoroughly inflated through the Eustachian catheter every other day for six times, with the result of improved hearing, which remained for a longer time after each occasion. After the last he had no relapse, and continued to hear as well as before the attack. It was noticeable that the sense of relief and improvement in hearing experienced after the use of the catheter was much greater than after inflation on Politzer's method, which seemed not to disperse the fluid so effectually.

The indications for treatment in these cases are sufficiently plain, and consist either in dispersing the fluid by the air douche frequently repeated, followed, if necessary, by injections into the tympanum through the Eustachian catheter; or, as a last resource, procuring the removal of the fluid by making an incision in the membrane. The latter procedure, although called for in some cases where the tympanum is the seat of morbid secretion, will not, I think, be often required when it is of a so-termed serous character. These latter cases, however, are so rarely met with in comparison with the former, that it

becomes very difficult to collect any great number which might form a guide to treatment.

Still, when the amount of fluid is so considerable that it does not become absorbed during the less severe treatment by inflation, &c., the difference in character of the secretion should not, I conceive, allow these cases to form exceptions to the rule which applies when the collection consists of pus, as in acute purulent catarrh, or of mucus, as in the non-purulent form.

In the Supplement to Dr. Adam Politzer's work on the Membrana Tympani, in the cases where he performed this operation he speaks of the membrane as being "much shrunken" and presenting "a dark greenish colour," and says that the mucous matter was driven out through the incision into the external meatus on using his method of inflation. I have not met with this precise change in the colour of the membrane, or cases where the secretion has been so copious as Dr. Politzer seems to have observed, but have seen it distinctly ooze out through the cut.

So long as the fluid is of a thin character, my impression is that very few cases will occur where it will not disappear under the persevering use of inflation; and the manner in which this is effected appears to be, that upon the air entering the tympana the fluid becomes freely dispersed on to the walls of the cavity. Some will probably be driven into the mastoid cells, some will pass into the pharynx; and to assist in this latter taking place, it has been suggested that the air douche should be employed when the head of the patient is bent towards the unaffected side, and a little forward, thus encouraging the gravitation in this direction. To aid in the process of absorption and to check the tendency to abnormal secretion, I have found it useful to inject occasionally a few drops of a warm solution of sulphate of zinc, about three grains to the ounce, through the Eustachian catheter.

Dr. Politzer's case of "serous accumulation in the tympanic cavity" resembled, in several particulars, the one I have recorded. Here also the fluid was absorbed after using the air douche for some time. In examining the membrane when the patient was lying down and when standing up, the fluid was noticed to move with each change of position. With regard to

my patient, the question suggests itself whether, with the very imperfect hearing for some sounds which he had for years, it might not be possible that the extremely good hearing which he had for others was kept up and encouraged by the constant exercise of this ear on musical sounds, and whether, without this, the hearing generally might not have been less acute. It is also, at first sight, not quite clear what connection the fit of vomiting had with the deafness which immediately succeeded it; but I suggest as a possible explanation of this, that the accumulation had existed for some time in the tympanum, and had been in such a situation as not to interfere with the hearing, but that the act of vomiting may have caused a change in position which in some way or other impeded the conduction of sound through the tympanum in a similar way to which a change of posture from the prone to the erect was productive of deafness.

It is very remarkable for how long a time an accumulation would seem to remain in a fluid state in the tympanum, at least so far as one can judge from the history and symptoms of the case. The following will illustrate what I mean:—

Ed. H., a healthy-looking boy, aged 12, came to St. George's under my care on Oct. 12, 1871. He said—which his friends confirmed—that he had been deaf as long as he could remember. With the right ear he could hear the watch at six inches, and one inch with the left; conversation in an ordinary voice, if sitting quite close to the speaker, only losing a word here and there; but hearing very imperfectly if the speaker were at any distance from him. Both tympanic membranes had a general opacity, as if at some period the tympana had been the seat of catarrh, and the outline of the handle of malleus was indistinct. In no other respect was anything unusual remarked about them. The tuning-fork was heard normally when placed on the vertex. He had occasionally suffered from slight attacks of pain in the left ear, not so in the right: had never had tinnitus when in the erect position, but when lying down on the right side had great tinnitus in that ear, and the same in the left under similar conditions. With both ears, when he inflated the tympana, with the mouth and nose closed, the squeaking sound indicative of mucus could be heard through the otoscope, but this mode of inflation did not affect the hearing one way or

the other. After vigorous inflation on Politzer's plan, the hearing at once rose on the right side to three feet, and to nearly a foot on the left. Seven days afterwards, when he came to the hospital, the increased hearing had been very nearly maintained during the week. No treatment beyond a repetition of this each week was adopted, except that the Eustachian catheter was occasionally substituted for Politzer's method, and for five weeks he continued to steadily improve so far as the hearing was concerned, but the tinnitus remained under the circumstances specified, with this exception, that after Politzer's inflation had been employed on two or three occasions, he was free from the noises until the day following, and on one occasion for the two subsequent days. I have often observed, in cases somewhat like this and the previous one, that it is not unusual for increased deafness to follow a change of position, but this was the first time that I had noticed tinnitus without a proportionate loss of hearing to be subject to the same exciting cause. Knowing, as we do, so many conditions where this symptom of noises can be traced to undue pressure on the labyrinth, and so many other conditions where it is painfully extreme, irremediable, and inexplicable from any mechanical alterations in the outer or middle ear, it was interesting to be able to excite this symptom at will, and one could not avoid speculating on the manner in which it might be produced. A possible, and as it appeared to me probable, explanation was, that with a change of position of the head of the patient some mucus in a semi-fluid state may have gravitated on to the tympanic membrane, and in this way evoked the symptom. This of course was mere conjecture, but at any rate it seemed not altogether unreasonable, and especially as the tinnitus disappeared for a time when the fluid was dispersed. The same causes at work might also explain the symptom of deafness or its temporary disappearance occurring in the other cases under like circumstances.

By Nov. 16, he could hear a watch at five feet with the right ear, and ten inches with the left; conversation much better; indeed, very well at ordinary distances—across a table, for instance. His deafness then was not enough to give him any inconvenience, or to interfere with his education, but

the noises in the ears were much as before, except that he was free from them for short periods after inflation of the tympana. It will be seen that there was without much doubt mucous secretion in the cavity of both tympana, especially on the left side, but ordinary treatment had not been successful in producing absorption, and possibly this might be due to a more than usually viscid condition of the secretion. The question then arose as to the propriety of making an incision into the membrane and attempting its removal in this manner. Inspection of the membranes on either side afforded no help in respect of a decision in the matter, as there was not any appearance indicative of the presence of fluid within the tympanum causing pressure on the membrane, such as a distinct change in colour confined to one spot, or a circumscribed bulging during inflation of the tympanum. All that could be said about any abnormality in the membranes was that they were opaque, as indeed they generally are after any tympanic catarrh.

It was finally decided that, irrespective of the appearance of the membranes, the other symptoms were sufficiently conclusive to justify the operation; and as with the left ear the hearing was worse and the tinnitus greater than on the other side, this was chosen.

On Nov. 16 I made a small vertical incision in front of the handle of the malleus, and passed a stream of air through the cut on Politzer's plan, but beyond a little oozing there was no escape of fluid. By means of a syringe, the nozzle of which was defended by india-rubber, and fitting the meatus, some warm water was passed through the tympanum and Eustachian tube, the water running out through the nose of the patient. Two days afterwards the wound had healed. The hearing was now improved so much for this side that he could hear the watch at twelve feet, and conversation at great ease. It was now the better ear of the two. It appears to me that there can only be one explanation of this change, viz. that some mucus which had interfered with the hearing was washed away by the water as it passed through the tympanum. On the 30th he still heard well on that side, and the tinnitus had gone from that ear. This symptom, however, did not subside altogether immediately

after the incision, as one would have expected, supposing t explanation already suggested of its exciting cause to be t correct one. It did so, however, in great measure, and in fou teen days afterwards completely. Three months afterwar when the patient again came to the hospital, the hearing w still good, and there had been no recurrence of tinnitus.

CASE OF DIPLOPIA FROM PARALYSIS OF THE EXTERNAL RECTUS MUSCLE OF THE RIGHT EYE TREATED BY THE LOCAL APPLICATION OF A SOLUTION OF THE SULPHATE OF ATROPIA.

BY THOMAS WHARTON JONES, F.R.S.,

Professor of Ophthalmic Medicine and Surgery in University College, and Ophthalmic Surgeon to the Hospital.

In a former communication to this journal, I stated that the sympathetic nerve, at the same time that it governs the consensual dilatations of the two pupils, appears to have some influence on the action of the external recti muscles which is consensual therewith; and that a consideration of this[1] had led me to try the effect of dropping atropia into the eye in a case of paralysis of the external rectus, as soon as I had found that paralysis of the muscles supplied by the third nerve yielded so decidedly to the influence of Calabar bean locally applied.

In the case which I then related, though it was by no means a favourable one in consequence of being connected with intracranial disease, the result was that, after a month's treatment with atropia in solution dropped into the eye, the diplopia had entirely ceased, except when the patient made an attempt to look very much outwards on the affected side.

In the following case, which was of a more favourable character, the cure has been perfect.

Mrs. T., aged 45, presented herself at University College

[1] For my views as to the influence of atropia on the sympathetic nerve, see my work on "Failure of Sight from Railway and other Injuries of the Spine and Head," pp. 185, 248. London, 1869.

Hospital on the 1st of January, 1872, affected with diplop[illegible] which had come on a fortnight before, after a violent passion.

On examination it was found that the double vision w[illegible] owing to paralysis of the external rectus of the right eye. Th[illegible] patient stated that she had been subject to pains in the head f[illegible] five months past; has had four or five miscarriages, but there [illegible] nothing to indicate any syphilitic taint.

The patient was much troubled with a cough, and for this [illegible] mixture of the compound tincture of camphor was prescribed [illegible] and afterwards a mixture of the tincture of colchicum an[illegible] hyoscyamus. The latter afforded most relief to the cough. For several nights at bed-time the patient had also a pill containing one-quarter of a grain of the extract of Indian hemp and four grains of the extract of hop.

With the exception of the above remedies for the cough, the case was treated exclusively with the atropia drops and lotion to the eye. The following is the progress to recovery of the power of the affected muscle:—

January 1, 3, 6, 8, 10.—Has had a four-grain solution of the sulphate of atropia dropped into the right eye every day here mentioned, and has besides been using an atropia lotion (gr. j—ʒviij) two or three times a day at home.

Under this use of atropia the external rectus has been acquiring power; and this day, Jan. 10, the eyeball admits of being turned outwards to a decidedly marked extent. The patient herself is conscious of improvement.

January 12, 15.—Atropia drops and lotion repeated. This day, Jan. 15, the eyeball can be turned outwards very much more.

January 26, 29, 31; *February* 5, 12, 23.—Under the continued use of the atropia to the eye, the power of the external rectus has been progressively increasing until this day, Feb. 23, when it was found that the eyeball could be turned outwards to the full and natural extent, and that there was no longer any double vision complained of.

IX.

ON THE TREATMENT OF HEPATIC DROPSY.

BY W. R. BASHAM, M.D.,
Physician to the Hospital.

PART II.

THE treatment of the early stage of hepatic dropsy resolves itself into efforts to relieve the engorgement of the liver, to regulate the digestive function, and set free if possible the obstructed portal circulation. It has been already remarked that, if a case comes under notice sufficiently early, these objects are usually attained. It is not often, at least in hospital cases, that the patient comes under observation at so favourable a period. Mostly the condition of the patient represents a far more advanced stage of the liver disease.

The ascites has been probably of some weeks' duration; the breathing has become affected by the abdominal fluid pressing upwards on the diaphragm and thus limiting and embarrassing its movements. Bronchial catarrh, particularly in the winter months, increases the pulmonary distress. The heart's action is often irregular. The lower extremities are probably greatly œdematous; the urine is scanty, high-coloured, with abundance of pink urates; and the vessel in which the urine stands is stained of a bright carmine red. The bowels are generally sluggish; there is no desire for food, and stimulants are alone cared for. This is a grave aspect of symptoms, and the prospect of relief is proportionately less.

There are cases, which experience will without difficulty discriminate, in which great advantage is derived from a small bleeding from the arm. Six or eight ounces at most may be

taken, with speedy relief to the pulmonary distress, and a consequent subsidence of the venous tension and a diminution of the excessive anasarcous effusion.

The indications by which the venesection may be justified are found in the aspect of the patient and the state of the pulse. The features are dusky, the eyes are hazy, the lips have a venous colour, the respirations are short and husky; moist, wheezy murmurs are heard everywhere in the chest; the pulse is sometimes irregular, with some degree of fulness. In some cases it is small and sharp, while the heart-sounds are altered or modified by the presence or absence of atheromatous disease of the aorta, which is a frequent complication in these cases. Bleeding from the arm has fallen into almost absolute disuse. Forty years ago, arm-bleeding was employed in the treatment of the majority of diseases; now it has lapsed into total neglect and oblivion. Doubtless as a remedial means it was abused, and the principle of its use by many either ignored or not understood; just as in modern times the use of alcohol in its many forms as a stimulant has been overdone, and the principle on which it should be employed overlooked.

In the disease now under consideration, not only is there obstruction to the circulation through the liver by the morbid changes which its parenchyma has undergone, an obstruction which is the parent of the abdominal dropsy, but there is superadded pulmonary engorgement, difficult breathing, an increasing venosity, and consequently a more diffuse dropsy; serous effusion infiltrating the lower extremities. The heart's action is often irregular and laboured: it is attempting to drive the blood, already vitiated by bile products, through the pulmonary capillaries, which from the accumulating impurities still further resist its passage. In such circumstances it is in vain to expect relief from powerful hydragogue purgatives alone. A few ounces of blood taken from the arm will secure an amelioration of the symptoms which no other measure produces. It is like, even equivalent to, lightening the load which an overtaxed horse has to draw. The relief is most marked: the heart's action becomes regular and steady, the breathing less laboured; nor is this the only advantage,—remedies which in the overcharged plethora of the venous system were inoperative, now are capable

of exciting the organs to activity. Small doses of mercury, squills, and digitalis will now induce a diuretic action. The urine increases in quantity, the proportion of water increases, its specific gravity diminishes, it is sufficiently dilute to keep the urates in solution, and the thick, muddy, scanty urine is replaced by a clear and more healthy-looking excretion. The abdominal walls become less tense, the anasarca of the lower extremities decreases, and there is a general, but for the most part only temporary, improvement, in the condition of the patient. The improvement, however, is sufficiently marked to justify a steady perseverance in diuretic agents. The iodide of potassium and cream of tartar, the acetate of potash and digitalis, with sweet spirits of nitre, the infusion of broom-tops, juniper infusion, with squills and many other combinations, may be given with advantage. The dropsy may by these means be kept down for a considerable period, for months, or even longer; a complete recovery, permanent and durable, must not be expected. The next and most formidable and altogether irremediable stage of the disorder is characterised by great distension of the abdominal walls, a distension which gives to the skin a shining and glistening appearance. The slightest touch by percussion elicits the most marked impulse to the opposite fingers. Emaciation during the preceding weeks has generally been most marked. The attenuation of the abdominal walls, distended to the utmost by the fluid accumulations in the belly, has rendered visible the course of the external abdominal veins. Among these the course of the external epigastrics and their inosculation with the external mammary veins on both sides become palpably evident. These superficial veins in many cases acquire a size proportionate to the extent of the obstruction to the portal circulation through the liver. It is a circuitous route pursued by the blood in its return from the hæmorrhoidal and other veins of that series, which makes for itself a passage through this indirect channel to the external mammary veins, and thus reaches the right side of the heart. It is at this point that the dropsy acquires perhaps its maximum degree; not only are the abdominal walls tense, but the anasarca of the lower extremities is on the increase. The urine, which is usually scanty, high-coloured, loaded with urates having a pinkish tinge, becomes now slightly albuminous, a

condition dependent on the retarded circulation through the kidneys—the outpour of blood from the venous plexus and the emulgent vessels being obstructed by the tardy flow of blood through the inferior cava; and if, to all this, pulmonary engorgement be added, the case of the patient is most unpromising. Hydragogue purgatives, particularly the podophyllin, with the subchloride of mercury, will produce temporary relief. If, however, there be an evident decrease of the dropsical tension, an effort may be made to induce a greater outflow of urine—it rarely succeeds; nevertheless, it is the direction in which remedies must work. A few days will indicate the prospect of further relief by medicine; and if the fluid remains undiminished, the urine still scanty, the breathing oppressed, and the lower extremities still more anasarcous, the loose tissue of the scrotum and penis being infiltrated with fluid, the time has arrived, and should not longer be delayed, of obtaining relief by tapping. It frequently happens that the reduced tension following the drawing-off the large quantity of serum from the cavity of the belly quickly sets free the excretory functions of the kidneys, and within twenty-four or forty-eight hours the urine is doubled in quantity, the albumen slowly disappearing from it, and the urates, no longer tinted with the oxidized products of uric acid, are dissolved in the augmented volume of urine.

Diuretics should now be chiefly relied on. To the more active of those already mentioned may, where the circumstances of the patient permit, be added those wines which are specially of a diuretic character. There are many of the Hock and Rhine wines which eminently possess this property; some also of the Hungarian white wines are actively diuretic. In hospital treatment there are certain spirits which may be selected with a similar object. Gin added to a cold solution of cream of tartar; gin and the sweet spirits of nitre; gin to which a few grains, at most ten, of the nitrate of potash have been added, are cheap and active diuretics. Hollands, which is a corn spirit strongly impregnated with juniper, when properly diluted, is also an appropriate diuretic. The spiritus armoraciæ compositus of the Pharmacopœia has with some a powerful diuretic action. Such is a general outline of the principles upon which the treatment of hepatic dropsy should be conducted. Each case will probably

exhibit some complication or variation peculiar to itself. The unfavourable and rapid progress of some cases in comparison with others is most remarkable. Such cases are generally distinguished by severe gastric symptoms at the earliest stage; the morning retching being oftentimes supplemented by hæmatemesis, severe gastralgia, and from time to time a marked icteritic stain of the conjunctivæ. In the commencement, such symptoms are best relieved by leeches to the epigastrium, or by a succession of blisters to the same region; the internal remedies being mercurial purgatives; and when the stomach has regained its power of retaining ingesta, the hydrochlorate of ammonia, or, as it now named, the chloride of ammonium, in ten-grain doses, with taraxacum extract, may be given, and made more palatable by the addition of a few drops of the dilute hydrochloric acid, and with a little syrup of ginger, which takes away the disagreeable urinous taste of the salt. As a purgative, if a continuance of mercurials be not thought desirable, the compound gamboge pill will be found very serviceable.

The prognosis of most cases of hepatic dropsy, if connected with or arising from the abuse of stimulants, must be unfavourable. Ultimate recovery in no case can be expected. Although the disease may for a time be retarded in its progress, and the fatal termination protracted, yet a permanent restoration to health, or the obliteration of the organic change in the hepatic structures, pathology forbids us to hope.

X.

CONDURANGO.

BY ALFRED W. BENNETT, M.A., B.SC., F.L.S.,
Lecturer on Botany.

THE excitement caused by the reputed wonderful cures of cancer by this drug has caused it to command an enormous price, especially in New York. Dr. P. T. Keene, in an official report presented to the United States Department of Agriculture, states that he has fully assured himself, while in the interior of Ecuador, of its remedial properties, by personal observation in

some twenty cases of chronic disease of the blood; and Dr. Bliss, of Washington, is stated to have accomplished by its means several notable cures upon prominent personages, and considers it "as reliable a specific in cancer, scrofula, and other blood diseases, as cinchona and its alkaloids have proved to be in zymotic diseases." The resident practitioners of Ecuador are, however, less confident of its efficacy as a cure for cancer; but believe it to be very useful in cases of rheumatism and secondary syphilitic disorders. Dr. Jaramillo, of Guayaquil, has been eminently successful in curing syphilis, as well as intestinal, urethral, and uterine ulcers; the application being in some cases a decoction of the wood without the bark, but more often of both. Reduced to a powder, he says, an ounce will kill a good-sized dog. The milk of the plant he applied to ulcerated surfaces, and found that it promoted cicatrization. The name *Condurango* or *Cundurango* is said to signify in the Quicha language "Vine of the Condor," from the tradition of the country that, when the condor is bitten by a poisonous serpent, it swallows some of the leaves of the plant and experiences no harm.

The botanical affinities of the plant appear now to be satisfactorily determined, although several absurd mistakes have been made respecting it. It is called by some *Equatoria garciana*, a name entirely unknown to botanical nomenclature. Dr. Buyon, in the "Andes" of Guayaquil, states it to be the *Mikania guaco* of Endlicher, belonging to the section Eupatoriaceæ of the order Compositæ, but its description entirely negatives this hypothesis. The following exact description of the plant is derived partly from Dr. Keene's Report to the Department of Agriculture; partly from Dr. A. Destruge, of Guayaquil, a corresponding member of the Société d'Anthropologie of Paris, who has paid great attention to the subject.

It grows on the western side of the Andes, at an altitude of from 4,000 to 5,000 feet, with a twining stem which reaches a great height, and varies in diameter from one to five inches. The stems are quite flexible when fresh, but when dry very brittle; the bark, which is the part containing most of the medicinal properties, is externally of a greenish grey colour, and has numerous small warty excrescences. When freshly cut it

gives an abundant milky viscous juice or sap (probably more correctly latex); it is somewhat fibrous, and the cut portion of the dry bark presents small yellowish dots, easily distinguishable. The odour is balsamic, the flavour peculiar, and decidedly an aromatic bitter. The leaves are large, sometimes reaching six inches in length by five in breadth, opposite, simple, entire, cuspidate, cordate, and of a dark green colour. The flowers are small, arranged in umbels; the calyx has five ovate obtuse divisions, is villous below, and of quincuncial æstivation; the corolla rotate, of five lanceolate divisions, hairy below within, somewhat fleshy, with membranous margin, of imbricate æstivation; the stamens without appendage, the anthers terminated by a membrane, and the pollen-masses elongated and suspended; the stigma pentagonal and conical. The ovary is 2-celled; the fruit consists of a pair of dehiscent pods (follicles), five inches in length, flattened on their inner sides, and joined both at the base and extremity. The seeds are numerous, dark brown, and compressed, each with a long coma attached to one end.

These characters determine the plant, without doubt, to belong, as stated by the two authorities above named, to the natural order Asclepiadaceæ. Dr. Destruge refers it to the section of the order known as Asclepiadeæ veræ, and the division Astephana, distinguished by having the limb of the corolla without scales, and the stamens without appendage or corona, and comprising only five genera, *Astephanus*, *Mitostigma*, *Hœmax*, *Hemipogon*, and *Nautonia*. In neither of these five genera, however, can the Condurango be included, since *Astephanus* has the calyx segments acute, the corolla subcampanulate, and the stigma elongated; *Mitostigma* possesses two long filaments at the end of the stigma; in *Hœmax* the corolla-segments are hooded; *Hemipogon* has the calyx-sepals acute, hard, and with a curved extremity; while in *Nautonia* the sepals are striated and curved. No name is, however, suggested for the new genus, and the subject is well worthy of further investigation.

[It is perhaps almost needless to add that we do not in any way pledge ourselves to the medicinal efficacy of Condurango; and that as regards its asserted action in cancer we are wholly incredulous.—ED. PRACT.]

XI.

ON THE ELIMINATION OF ALCOHOL.[1]

BY A. DUPRÉ, PH.D.,
Lecturer on Chemistry.

PART II.

IT has been shown in the previous part that, even after ten days of total abstinence, the urine, when treated as for the estimation of alcohol, yielded some volatile acid, which from its smell was judged to be acetic acid. A similar substance was also found in the urine of a teetotaller, in consequence of which a somewhat larger quantity of urine from the same gentleman was examined.

The quantity experimented on amounted to 180 ozs., being the greater part of eight days' urine. To avoid decomposition the daily portion of urine was at once distilled, and the various portions of distillate united for the final treatment. All distillations were conducted with the usual precaution of having the receiver closed by a mercury valve. The final distillate from the united portions amounted to 10 cub. cent. These 10 cub. cent. possessed the following characters:—Specific gravity at 15·5° C., equal to 0·9996 water at the same temperature taken as unity. Vapour tension in Geisler's Vaporimeter equal to 0·88 per cent. by weight of alcohol. 3·593 grains of it, when oxidised by bichromate, &c. yielded an acid distillate, which, when neutralised with barium carbonate and evaporated, gave 0·0192 grain of barium salt. This salt on decomposition with sulphuric acid gave 0·0176 grain barium sulphate, and contained, therefore, 53·88 per cent. of barium ; pure barium acetate contains 53·72 per cent. barium. The acid expelled by the sulphuric acid had the smell of vinegar. The distillate readily gave the emerald green reaction with bichromate and strong sulphuric acid ; and lastly, it very readily yielded iodoform : viz. when heated with solution of iodine and an alkali, it gave a yellow glittering precipitate,

[1] Abstract of Paper read before the Royal Society.

which, under the microscope, consisted of golden-coloured six-sided plates, generally single, sometimes united into stars after the manner of snow-crystals.

Having abstained from the use of alcohol since May 16, the author collected his urine from May 29 to June 10 (with the exception of June 4 and 5), amounting during the ten days to 360 ozs. This urine was treated exactly as the previous samples, the daily portion being at once distilled to avoid decomposition. All the distillates were then united and treated together as before. The final distillate amounted to 10 cub. cent. These showed a specific gravity of 0·9988 at 15·5° C. In Geisler's vaporimeter they showed a vapour tension equal to 1·7 per cent. of alcohol. 3·588 grains when oxidized, &c. yielded 0·0307 grain of barium salt, giving 0·0278 grain barium sulphate, and contained, therefore, 53·24 per cent. of barium; here also the smell of the escaping acetic acid was unmistakable. The volatile acid obtained from another portion of this distillate gave distinctly, though but feebly, the well-known reaction of acetic acid with ferric chloride. Finally, the distillate readily gave the iodoform test as well as the green reaction with bichromate and strong sulphuric acid.

On June 22 and 23 the urine was again collected and examined. The urine of the 22nd yielded an amount of volatile acid neutralising 0·53 cub. cent. d. n. soda; the acid obtained from the urine of the 23rd neutralised 0·55 cub. cent. d. n. soda. Lastly, the urine was collected on June 26, 27, and 28, no alcohol whatever having been taken since May 16. The urine was repeatedly distilled, as usual, the final distillate amounting to 5 cub. cent. The distillate readily gave the iodoform test as well as the green reaction with bichromate and sulphuric acid.

It appears, therefore, that a substance is found in the urine after six weeks of total abstinence, and even after an abstinence of two years, which gives the reactions ordinarily employed for the detection of small quantities of alcohol. As it is impossible to assume that elimination of alcohol, due to any alcohol having been taken, could go on for a period of six weeks, not to speak of two years, we are forced to the conclusion that this substance is a normal constituent of human urine, or at least may be obtained from it by distillation with an acid, &c.

At first the author inclined to the opinion that this substance was actually ethylic alcohol. The amount of substance obtained was, however, so minute, that even if it had been ethylic alcohol, it would not have been possible to separate it in the pure state. The distillate, moreover, is so evidently a mixture of various substances, that it would be unsafe to rely solely on the tests above given, the more so since the vapour tension, specific gravity, and amount of acetic acid produced are not such as a dilute alcoholic solution would yield. Lastly, the distillate gives the iodoform test far more readily than a spirit diluted so as to correspond in strength with the amount of acetic acid obtained from the distillate by oxidation; the appearance of the precipitate is also somewhat different.

However, while still engaged in this research, the author learned that M. Lieben, to whom we owe the introduction of the iodoform test, had already detected the presence of a substance, in human urine as well as in the urine of animals, which yielded iodoform. M. Lieben affirms that this substance is not alcohol, but he also, though working on larger quantities of animal urine, has not succeeded in isolating it. M. Lieben thinks it probable that this substance may be one of the odoriferous constituents of the urine. The author, however, believes that this cannot be the case—firstly, because the urinous odour of the distillate, which is very strong if no animal charcoal has been used, is not destroyed by heating with the dilute solution of bichromate and sulphuric acid, by which, nevertheless, acetic acid is produced; secondly, because the substance yielding the acetic acid and giving the iodoform test is not removed by distillation over animal charcoal, whereas the odoriferous compounds can thus be almost entirely removed; and thirdly, the same, or at least a similar substance seems to be present in the breath. Perhaps the substance giving the iodoform test, and that yielding the acetic acid, are two different compounds, but this must be left to future researches to decide. There can, however, be no doubt that this substance has sometimes been taken for alcohol, and has thus led some experimenters to the belief that the elimination of alcohol continued much longer than in reality it did.

In conclusion, it may not be uninteresting to point out that

the substance yielding the acetic acid is present, apparently, in less than its normal proportion just after the effect of a dose, or doses, of alcohol has passed off, after which it gradually rises to the normal standard. A somewhat analogous effect was observed, by Dr. Bence Jones and the author, in their research on the passage of quinine into and out of the tissues, to follow the taking of quinine. In this case the natural fluorescence due to the presence of a substance resembling quinine, and therefore called animal quinoidine by the discoverers, was observed to fall below its normal standard just after the effect produced by the administration of quinine had passed off, gradually rising again to its normal condition. A careful investigation of this mutual relation may perhaps serve to throw some light on the action of alcohol, both in health and in disease.

Reviews.

Dr. Pereira's Elements of Materia Medica and Therapeutics; abridged, &c. Edited by ROBERT BENTLEY, M.R.C.S., F.L.S., Professor of Materia Medica and Botany to the Pharmaceutical Society of Great Britain, &c. &c., and THEOPHILUS REDWOOD, Ph. D., F.C.S., Professor of Chemistry and Pharmacy to the Pharmaceutical Society of Great Britain. 8vo. Pp. 1,093. London: Longmans.

THIS volume, as it stands, represents a class the multiplication of which we cannot altogether approve. For its esteemed editors we entertain a very sincere respect: Professor Bentley as a botanist, and Professor Redwood as a pharmaceutical chemist, representing the highest degree of scientific attainment in their respective departments. And indeed we may state, unreservedly, that so far as botany and pharmaceutical chemistry are concerned, this edition of Pereira is as well done as could possibly be desired. But the question is, whether it was worth while to present Pereira to the students of the present day in a dress which is modernised only as regards these two departments; and to this we can only reply in the negative, be our opinion worth what it may. It would doubtless have been a useful work for Professors Bentley and Redwood to have produced a thoroughly well-digested account of the botanical and chemical characters, reactions, and preparations of the drugs employed in medicine: such a book, as a guide to the scientific pharmacists who are so usefully replacing the old class of misinformed or half-informed chemists and druggists, would have had an appropriate and important educational function. But to re-edit Pereira, in any adequate sense of the term, must include the bringing up of that therapeutical information, which was so important a feature of his magnificent work, to the level of the day; and we regret to say that nothing of the kind has been done in the present volume, though therapeutical descriptions form a considerable portion of its bulk. We are sorry to have to say this, but the fact is unquestionable; only, it ought to be remarked that the chief blame rests with Dr. F. Farre, the last editor of Pereira, whose therapeutical work has been mainly followed in this volume.

If we wished to give the clearest possible illustration of the defects of this work in a therapeutical point of view, we could hardly do so more effectively than by mentioning, that while the plant from which *gum mastic* (a substance which, as the editors truly remark, is rarely employed as a medicine) is derived is carefully figured, and its product punctiliously described, *nitrite of amyl*, one of the most important and practically interesting remedies that has ever been discovered, is not even mentioned. And this is only one of many instances in which the book takes "tithe of mint, anise, and cummin," while neglecting "the weightier matters of the law." We are bound to verify this criticism, and it is unfortunately but too easy to do so.

Perhaps no medicine—quinine, cod-liver oil, and iodide of potassium excepted—has more conclusively established itself as a remedy of high value than bromide of potassium; yet how is it dealt with in this treatise? It is scarcely credible that the book gives no word of reference to its employment in ordinary epilepsy, and they state its proper dose to be from 4 to 10 grains. Hypodermic injection of morphia, again, is one of the most potent remedies we possess; it is mentioned briefly, but no word of precaution is given as to the dose, a matter of the most serious consequence, as directly affecting the safety of numerous lives. It is really too provoking, after remarking this unpardonable omission, to turn a few pages on and find a page and a half (with two engravings) devoted to the *Moschus moschiferus*, and the obscene and trivial drug which that animal produces; or to turn a few leaves in the opposite direction and find two pages and a half given to the cochineal insect, which is perfectly useless in medicine. Again, as regards male fern, nothing is said to indicate the immense superiority of the liquid extract over the powder; and a very inadequate dose of the former is recommended in the treatment of tapeworm. Another most important modern remedy is ergot of rye: our readers do not need to be told of the beneficial effects which it has lately been shown to produce in aneurism, blood-spitting, neuralgia, &c.; none of these subjects are even mentioned, and only the familiarly known actions of the drug upon the uterus are discussed.

The article on Cinchona and its products was a splendid performance for Pereira's time. It is left nearly in its original condition, containing a vast variety of botanical information which now is useless to the student; while the modern observations of Binz and others as to the effects of quinine upon the blood are ignored.

In the article on Arsenic, which is a somewhat long and elaborate one, it is amazing to find that doubt is thrown on the tonic action of the drug; and that no mention is made of the beneficial effects which it has lately been found to produce in certain

varieties of consumption. Of muriate of ammonia the statement is recorded, that "in this country it is so rarely employed internally, that we have very slight experience either of its physiological or its therapeutical effects;" though it has been constantly used for neuralgia since Sir Thomas Watson recommended it thirty years ago, and in quite recent years has been more strongly praised by several English authors. A more excusable but still a serious omission is to be observed under the head of silver salts. No notice is taken of the remarkable researches of Bogolowsky on the action of these salts upon the blood and tissues. The subject of Indian hemp is very unsatisfactorily treated. Not only are its physiological and therapeutic actions imperfectly discussed, but the reader is left in an uncertainty, which in the present state of knowledge ought not to exist, as to the real strength, and consequently the proper dose, of the well-prepared extract and tincture. Under the head of Tobacco, all the inconveniences and dangers attending the use of the infusion are described, but nothing is said of the modern use of nicotine by hypodermic injection. Another instance of imperfect discussion of an important modern remedy is the way in which podophyllin is dealt with, none of the more exact researches respecting its action being referred to. As a further example of absolute omission of an important matter, we may notice that Woorara is not even mentioned. But really the list of omissions and imperfections in the physiological and therapeutical parts of this volume might be drawn out to a length which we have neither space nor inclination to occupy. We shall give only one concluding example, which is crucial. The subject of alcohol is treated at some length, but not a single reference is given to any of the researches during the last fifteen years as to the action of this substance in health and in disease.

The defects and errors which have been above enumerated are of such a nature that it was impossible to pass them over, or to treat them as matters of indifference. Serious as they are, however, especially as diminishing the value of the book to the student of medicine, there is another fault in the volume which in our eyes is equally grave. We have always maintained, and always shall maintain, that a work professing to deal with therapeutics, and really only presenting a description of drugs, is an offence comparable to that of offering a stone when bread was asked for. This volume, however, contains nothing else, with the exception of a few most scanty, imperfect, and antiquated remarks upon the employment of heat and cold. The whole subject of electricity is ignored; nothing is said about diet, about the influence of climate, or of the use of frictions to the body, or of the remedial influence of gymnastic exercises. We must protest that the omission of all notice of these important

subjects in a treatise on Materia Medica and Therapeutics which occupies more than a thousand pages, is unworthy of the present state of medical science, and is especially unworthy of the reputation of the distinguished author whose treatise Messrs. Longman have undertaken to republish.

We have been led irresistibly into a criticism of the work before us which can hardly seem other than harsh and unamiable. It may be said that such depreciation of labours which undoubtedly have been painstaking and fatiguing, and a large portion of which really represents the best results of modern science, is ungenerous and unthankful. We regret that it should seem so, but our conscience was never freer from reproach on the score of partiality. It is because we earnestly believe that the subjects of Pharmaceutical Chemistry and Botany are as nothing in real and practical importance as compared with that grasp of therapeutical principles which is the very salt of life to the scientific intelligence of the student of medicine, that we are determined to protest on every occasion against the routine system which tends to swamp that intelligence under a mass of almost totally useless learning, while things of essential importance to his progress are neglected. We do most unfeignedly and heartily agree with Professor Huxley in his expression of impatience at the well-meant pedantry which for generations has assumed that the practitioner of medicine is bound to possess an accurate knowledge of matters which really belong solely to the pharmaceutical chemist. Now, less than ever, is there any excuse for the continuance of this system. Our pharmaceutists of the future will be thoroughly competent men; and it will be their interest, no less than their pleasure, to supply good and pure medicines to the profession and the public. The day for bulky treatises on Materia Medica (in the old sense) for the medical student are over. It is fully time that his energies should be left free for the serious prosecution of those studies in therapeutics, properly so called, which will give him a sense of reality in his work that has been sadly lacking under the system which has so long sat upon his shoulders like an old man of the sea. For the scientific pharmaceutist the volume we have been reviewing is of the highest value; for the student or practitioner of medicine it is of little use: and we would venture, even now, to suggest that the edition should be called in, and another six months expended (with the assistance of some physician who is well acquainted with modern therapeutical researches) in bringing the therapeutical part up to the same very high level of excellence which distinguishes the rest. It is clear that no blame rests on Professors Bentley and Redwood, each of whom has done his own special work excellently well; but it is evident

that they absolutely required a colleague who should be familiar with the latest developments of practical medicine: and such a colleague, we should think, might readily be found.

Sciatica, Lumbago, and Brachialgia: their Nature and Treatment, and their immediate Relief and rapid Cure by hypodermic Injection of Morphia. By HENRY LAWSON, M.D., Assistant Physician to St. Mary's Hospital, and Lecturer on Physiology in St. Mary's Hospital Medical School. London: Hardwicke.

THIS small book is a lively and vigorous treatise on a subject with some parts of which the author has had sufficient practical familiarity to enable him to offer useful hints to the practitioner. He has himself suffered from sciatica, and been cured by the hypodermic injection of morphia: this fact has naturally directed his attention to the history and treatment of that disease; and on the principle of *experto crede* he has a right to be heard. The effect of his book on that class of practitioners which will probably read it most, will be useful; the strength and sanguineness of his assertions will no doubt do much to break down the merely unreasoning prejudice with which many medical men still regard the use of hypodermic injections, and enable them to cure, or greatly relieve, a considerable number of patients who would otherwise have got no effective help from them. After a time, however, they will certainly discover (if they see many cases) that sciatica is far from being always curable by hypodermic morphia, in whatever frequency or dose that remedy may be applied; and they will find that the danger of an opium-habit is a more formidable matter than Dr. Lawson seems to suppose.

Another remark that occurs to us is that the word "lumbago" is injudiciously applied to neuralgic affections of the posterior spinal branches: the use of that word should be confined, in accordance with the modern tendency, to *myalgic* affections of the back, which have a history of overstrain of *muscles* in proportion to their nutrition and fitness for work. Nothing is more important than the distinction between these and the true neuralgic affections. The grand fault in Dr. Lawson's book, however, is the unnatural separation which he attempts to set up between the sciatic, dorsal, and brachial neuralgias which he describes, and the neuralgias of the fifth cranial. His objections to the arguments that have been advanced in support of the doctrine that sciatica, and all other neuralgias, in part depend on inherited weakness of the central nervous system, are based on imperfect acquaintance with the evidence on this subject. He thinks that the only evidence of hereditary transmission which could support the hypothesis of a central cause of sciatica is

that of the immediate parent having suffered from the disease; and is unable to appreciate the force of facts (which exist in multitudes) proving that true sciatica is rarely found except in families prone to central nervous diseases of various kinds. In regard, also, to theories which have been propounded as to the parts of the central nervous system which are respectively affected in neuralgia itself, and in the vaso-motor and trophic complications that sometimes attend it, the author is evidently baffled in his attempts to understand other writers by an imperfect knowledge of some points in the physiology of the nervous system.

In short, if the book be considered as an address rather *ad populum medicum* than *ad clerum medicum*, it will certainly be of considerable service. The advanced student of nervous diseases, on the contrary, will scarcely profit much by Dr. Lawson's little work. One thing, however, we can commend with little if any reserve: the author's remarks on electrical treatment are very sound and judicious; and even in the one or two instances in which we differ somewhat from his conclusions, we can recognise the fact that his researches have been made in a scientific spirit. It is doubtless a fault on the right side—fault though it be—that he considerably underrates the advantages of treatment of sciatica with the constant galvanic current; advantages which so calm and unprejudiced an observer as Eulenburg has declared to be among the most conspicuous facts in the whole circle of therapeutics.

Clinic of the Month.

Tracheotomy.—Mr. Wood, of King's College, in the course of a clinical lecture on Tracheotomy, observed that there are no less than three operations for opening the windpipe in cases of obstruction to the respiration, each of which possesses its own advantages under certain circumstances. These are laryngotomy, and tracheotomy above and below the isthmus of the thyroid body. Laryngotomy has the advantage of being readily performed, whilst from the close proximity of the crico-thyroid space to the rima glottidis, the surgeon is enabled to open up the interior of the larynx by dividing the thyroid cartilage vertically, should the nature of the obstruction require it, or to pass instruments through the chink of the glottis to dislodge impacted bodies. It is advisable in cases of tumours growing from the ventricles of the larynx, epiglottis, or vocal cords, and in inflammatory swelling which is traumatic or non-spreading, as well as perhaps in cases of syphilitic or phthisical ulceration of the larynx in which the disease does not extend below the true vocal cords. Mr. Wood recommends simplicity in the use of instruments for the performance of tracheotomy. He usually employs three instruments only: a single-edged pointed scalpel; a pair of slender and somewhat elongated forceps, provided with a single hook at the ends, which project very obliquely towards and fit each other in the manner of the teeth of a rodent animal; and lastly, a tracheotomy tube of appropriate size, constructed with an outer pair of spring blades held firmly together by a shield, and an inner tube which slides between them, and which can be removed for the purpose of cleanliness. He usually prefers to stand on the left side of the patient, and to cut up from, not down towards, the sources of danger in the lower part of the neck; it is not, however, in all cases possible to have this choice. As regards the two operations for tracheotomy, that which is performed above the isthmus of the thyroid body is by far the most readily performed and involves the fewest dangers before and after the operation. The site of the primary incision is nearly the same in both; and if the upper operation be at first intended, it can readily be exchanged, if need be, for the lower. Mr. Wood proceeds to give the details of the operations and the

difficulties that are likely to be met with, and dwells strongly on the great importance of proper care and treatment subsequent to the operation. After clearing the tube from blood and thick viscid mucus, the air which is inspired through the tube must have communicated to it the moist and warm characters which it normally acquires in its passage through the nose, mouth, fauces, and larynx. This can be done immediately by dipping a large coarse sponge, well cleansed, in water of a temperature a little above that of the body, and tying it loosely on each side to the tape which encircles the neck. As soon as possible, also, the air of the sick chamber should be made warm and moist by a steam kettle, with a long tube placed on a good fire. In large rooms or hospital wards it is better to erect a sort of tent of blankets over the bed close beside the fire, and put the mouth of the steam tube under it. In conclusion, he remarks, there is one point which it may happen to be important to keep in mind, and that is, the duty of completing these operations upon the windpipe, when once begun, in the face of every possible eventuality which may arise in the course of it, even up to and beyond the apparent death of the patient. In no case is the truth of the saying "while there is life there is hope" more paramount than in operations to relieve suffocation, to which, as in cases of drowning, the higher truth may be almost applied, that "beyond life there is hope." (*Lancet*, March 9, 1872.)

Flexions of the Uterus.—Dr. Graily Hewitt, in a clinical lecture on this subject, remarks that it is a comparatively new one in relation to uterine pathology; but statistics demonstrate that flexions are the most frequent as well as the most important of the diseases of the uterus. The causes of flexions he divides into the predisposing and the exciting. Amongst the former he enumerates an unhealthy state of the body generally, and the occurrence of pregnancy previously. Amongst the latter he names frequent successive pregnancies, blows, falls, and strains. Anteflexion of the uterus is more common than retroflexion in the proportion of three to two, but severe anteflexion is more rare than severe retroflexion. Lateral flexion is very rare. The pathological effects of flexions are to produce a congestion of the body of the uterus, and in a less degree also a congestion of the cervical portion of the organ. Hence the uterus becomes unduly heavy and larger, and withal more sensitive. Some consider that the congestion of the upper part of the uterus is not only the primary evil, but the cause of the pain in these cases of flexion, while the flexion itself is of secondary consequence. His own experience, however, has led him to take an opposite view, and he has no doubt that the congestion is occasioned by the flexion. This view of course influences the treatment in

these cases very decidedly; for whereas others are disposed to treat the affection, at all events in the first instance, by blood-letting and leeches—a treatment which has for its effect removal of congestion—he submits that such cases should rather be treated by going to the root of the matter, viz. by altering the position of the uterus, which is the means of maintaining the congestion. (*Lancet*, March 2, 1872.)

Therapeutic Uses of Hydrate of Chloral.—Dr. Oscar Liebreich, in a third edition of his treatise on Hydrate of Chloral, gives a general view of the classes of disease in which observation has allowed a general opinion to be formed as to the merits of the remedy. Numerous experiments in all countries have established the fact that chloral has the property of producing sleep in all pathological states where it is desirable to obtain this, and it does this without giving rise to any mischievous results. Some special peculiarities with regard to its action have, however, been observed. In a case of gout, for instance, a dose of hydrate of chloral produced excitement; but when the patient had been treated with carbonate of soda for a week, the same dose acted as a hypnotic. This, according to Dr. Liebreich, was due to the circumstance that, at first, the formation of urate of soda deprived the blood of its normal amount of alkali, and thus prevented the transformation of the chloral into chloroform. On the other hand, and in accordance also with the theory of the transformation of chloral, it has been noticed that in typhus, where there is an excess of alkali in the blood, small doses of chloral readily produced sleep, while larger (even moderate) quantities gave rise to symptoms of poisoning. With regard to the use of chloral in operative surgery, the results of Dr. Liebreich's experiments have led him to expect with certainty that the drug may be used in such a way as to produce sufficient anæsthesia for even severe operations on the human subject. His observations of animals have shown him that there is a marked difference between a poisonous dose and the quantity sufficient to produce complete anæsthesia; and this meets the objection to chloral as compared with chloroform, that it is not introduced gradually into the system, but at once. Although experiments have shown that small doses of chloral have little influence on the circulation, Dr. Liebreich advises caution as to its use in heart-disease. In trismus and tetanus larger doses are indicated, as small quantities do not produce the necessary action on the spinal cord. Hydrate of chloral has been found to act beneficially in a number of cases of puerperal convulsions; and Dr. Liebreich is disposed to explain this by accepting Frerich's theory, that the convulsive attacks are connected with the transformations of urea into

urate of ammonia, and by supposing that besides the production of chloroform there is a formation of hydrochloric acid which neutralises the ammonia. Among other diseases in which there has been a general agreement of opinion as to the beneficial effects of hydrate of chloral, Dr. Liebreich mentions senile insomnia, delirium tremens, nervous asthma, chorea, dental convulsions in children, sea-sickness, &c. (*British Medical Journal*, March 2, 1872.)

Treatment of Rodent Ulcer.—A severe case of rodent ulcer has for some time past been under the care of Mr. John Gay, occurring in a patient sixty-eight years of age, the disease having been in progress twenty-two years. There was no reason for believing it was in any way referable to syphilis. The case entirely yielded to the treatment by large doses of iodide of potassium. The iodide was given in doses of half a drachm three times daily. (*Lancet*, Feb. 24, 1872.)

Treatment of Small-pox.—At a recent meeting of the Medical Society of the College of Physicians, Ireland, Dr. A. W. Foot brought before the society an account of his treatment of small-pox in the wards connected with the Meath Hospital. The accommodation there for small-pox patients is very limited, and hence the total of cases which he had treated (fifty-nine) was very small compared with the numbers which had been admitted into other hospitals. He had personally watched each individual case most closely, assisted by a number of well-trained clinical clerks. In fifty-seven of the cases thermographic charts had been carefully kept by night and by day; quantitative analyses of the urine had been frequently made, and the bodies of the dead had been opened as frequently as possible. Of each case he had kept the notes himself, independently of others, and no expense or trouble had been spared to procure apparatus or medicine of the most modern description. He had treated the cases upon the antiseptic method, because he believed it to be the plan best adapted to save life, to prevent deformity, and to check the propagation of the disease. Of confluent cases he had twenty-four; of semi-confluent, six. Of these thirty, eleven had died—a mortality which might not look well for any particular line of treatment; but he regarded the constitution of the existing epidemic to be such that confluent small-pox ranked at present among the *morbi majores*, and that its normal rate of mortality was fifty per cent., or equal to that of Asiatic cholera. It was also to be borne in mind that nearly all the confluent cases had been presented to him under the most unfavourable circumstances—brought late to hospital, badly fed beforehand, intemperate, one of them far advanced in

pregnancy, three of them known to be never vaccinated, and no better evidence of this operation in most of the others than a family tradition; two others were children under nine years of age, one of whom had been previously exhausted by chronic scrofula in the bones. His mode of employing the antiseptic method of treatment consisted in giving internally the sulpho-carbolates of sodium and of iron, and in using sulphurous acid in the gaseous state, and as a drink, a gargle, a lotion, a spray for the nares and larynx, and in every way and form in which this important antiseptic agent could be used. He assented to the view that the secondary fever resulted from the absorption of products of decomposition, and, therefore, had eagerly sought for the best means of introducing into the body substances of known hostility to these elements of septicæmia. He preferred the sulpho-carbolates introduced into medicinal use by Dr. Sansom, to the plain carbolic acid, and, for obvious reasons, to the carbolates. He had used the sulpho-carbolate of sodium in thirty-four cases of variola, in doses of from seven grains occasionally to sixty grains every third hour. He corroborated the observations of Dr. Sansom, that when sulpho-carbolates were administered, the fæces were deodorised, the urine was unusually slow to decompose, and that the dead body resisted putrefaction. He had further observed an absence of the usual nauseous variolous odour from the skin; and drew attention to the smoky discoloration of the urine often observed during their employment, which could be ascertained not to be due to blood, by the spectroscope, the microscope, and the absence of albumen. The complications whose treatment was most forced upon his attention were, in their order of frequency, laryngitis, delirium, hæmorrhage, albuminuria. For laryngitis, which he considered to be almost inevitable in confluent variola, and which he thought the most usual immediate cause of death, he advocated an antiseptic treatment. On the very first symptom of the unavoidable irritation, he used ice internally, sponged the larynx with pure sulphurous acid (B.P.) or with a solution of carbolic acid (five grains to an ounce), or with a saturated solution of tannin applied through a curved tube introduced into the pharynx; and when from the swollen condition of the mouth and lips this was impossible, he introduced the spray through the nose. In children, he thinks especial attention should be given to the condition of the nasal cavities, as the exanthematous process is very violent in the Schneiderian membrane in the young; and Portal's observations of caries of the sphenoidal sinuses in children who had died of small-pox should be recollected. He also employed for laryngitis, leeches in the neighbourhood of the thyroid cartilage, followed by poultices or hot sponges. Delirium was chiefly observed in the previously intemperate, and

resembled delirium tremens in muscular debility, loquacity, and locomotive tendency. He had never seen his variolous patients suicidally disposed or furious, and never permitted any form of mechanical restraint to be employed. Stimulants did most good to alcoholic cases; leeching, cutting off the hair, and ice, to others. He had had but one true hæmorrhagic case—a woman, who died on the fifth day: but of the adult females, more than half menstruated, irrespectively of due time, during the first week of their illness. For profuse menstruation, he placed a block of ice, rolled up in a towel, to the vulva, and gave every second hour, till the hæmorrhage was checked, 15-grain doses of gallic acid, with thirty drops of the liquid extract of ergot of rye. In moderate cases he did not interfere, the discharge being beneficial to lumbar pain and headache. In ten confluent cases the urine was examined for albumen at the height of the disease: it was found in three, who each died without hæmaturia or evidence of previous renal disease. He had used quinine in the secondary fever, both on account of its antipyretic power and because, from the observations of Binz, Helmholtz, and others, he considered it an antiseptic of high rank. The sulpho-carbolate of iron came in well towards convalescence, in doses of from five to fifteen grains three times a day or oftener. The treatment of the face lay far deeper than that of the surface. He considered that it lay in the employment from within of antiseptics, as he was convinced that carbolic and sulphurous acids possessed the power of lessening, or more or less actually preventing, the conversion into pus of the contents of the vesicles. The antiseptics must be employed early, as soon as the multitude of granular papules on the face announced a confluent attack. He would use as an external auxiliary, carbolic oil—one part to three for coarse, one to seven for fine, skins—disguising the odour, if necessary, with half a drachm of oil of origanum to eight ounces of the carbolic oil. His experience of the sulpho-carbolates was not in small-pox alone; he had learned to value them from having seen their efficacy before this visitation in the hands of Dr. Hudson. He therefore did not bring forward their use as anything new. Dr. Sansom was the author of their use in medicine. Too much was not to be expected of them; they must be used as early in the case as possible; they could not overcome mechanical obstructions to life; they might be yet superseded by other substances capable of doing a greater amount of antiseptic work in a better manner; but he had selected these salts for use, and with them had employed sulphurous acid, on account of the known hostility which exists between antiseptics and every form of fermentation, and he would advocate the antiseptic treatment of confluent variola

until he should have become acquainted with a better method. (*British Medical Journal*, Feb. 24, 1872.)

Disease of the Knee-joint.—Mr. Cooper Forster records four cases of disease of the knee-joint that have recently occurred under his care. The first was of sudden onset, as a month previously he could walk well. In the course of a single night the joint became hot, red, swollen, and painful. The patient was spare and delicate-looking, with some consolidation of the apex of the right lung. The knee was found, on examination, to be bent and fixed, the joint swollen with the skin, which was tense and shining; the swelling apparently affected chiefly the head and inner tuberosity of the tibia. The most prominent point presented some fluctuation. The circumference was fourteen inches as against twelve of the opposite side. The leg was placed in a splint; iodide of potassium was ordered, with Dover's powder at night; slight reduction followed, but was not permanent. On the introduction of a grooved needle, a little greyish, mucus-like material escaped, which, on examination by the microscope, showed epithelium-like cells undergoing a fatty change. Amputation was performed. The joint was found to contain a large quantity of curdy, yellow, semi-coagulated lymph. The bones were much displaced, and the swelling, which gave rise to the idea that a tumour existed on the under-side, was due to rotation outwards of the tibia and foot, causing the internal condyle of the femur to become extraordinarily prominent. The second case was that of a young man without known hereditary predisposition to disease, in whom the right knee-joint became slowly stiff, without heat or redness. The skin was healthy; fluctuation could be easily felt on each side of the patella; the slightest movement caused violent pain. The glands of the groin were much enlarged; urine not albuminous. The limb was for some time treated by extension and splints; but at length amputation was performed by lateral skin flaps, with circular division of the muscles, and the arteries were secured by torsion. The synovial membrane was thickened, and covered with flaky lymph; the cartilages had all disappeared, leaving a vascular surface of bone. Section of the shafts of the two bones showed that the cancellous osseous tissue was yellow, fatty-looking, soft, and filled with pus and fatty matter. (*Lancet*, March 16, 1872.)

Extracts from British and Foreign Journals.

Iodine in Post-partum Hæmorrhage.—Dr. Booth, of North Carolina, records a case of a woman in her tenth labour, who had experienced several dangerous attacks of flooding after her labours. In this, after six hours the child was born, and the after-birth was delivered naturally, and all went well for three-quarters of an hour, at the expiration of which time the uterine tumour became large, soft, and flaccid, with other symptoms of hæmorrhage. Friction was tried, the hand was introduced, the abdomen being pushed with the other, but without effect. Happening to have some solution of iodine and iodide of potash in glycerine, double the strength of the officinal tincture of iodine, Dr. Booth injected this into the uterus, diluted with about twelve times its bulk of water. Immediately the flooding ceased, and the patient did well afterwards. Dr. Booth thinks that whilst astringent agents act in great measure by forming a coagulum, iodine acts directly on the mouths of the blood-vessels themselves. (*Virginia Clinical Record*, December 1871.)

Experimental Researches on Diphtheria.—A large work with this title has been published by Dr. Oertel. Buhl considered the characteristic features of diphtheria to be that it was a general disease without any preceding local lesion, and that there was a multiplication of nuclei in the connective tissue, and especially in the tissue of the mucous membrane, which led to necrosis by compression of the blood-vessels. Oertel is the first to corroborate the anatomical part of Buhl's views, but has been led to quite different notions in regard to the nature of the disease. Oertel found infiltration of nuclei, which he is disposed to distinguish from an accumulation of pus corpuscles, in the mucous membrane, in the sub-epithelial and submucous tissues, in the muscles, in the tissue of the lungs, in the kidneys, in fact in almost every organ of the body, and, which he regards as a most important point, in the *vessels of the brain and spinal cord*, in the *nerve-sheaths*, in the membranes of the brain and spinal cord, and even in *the grey substance of the*

spinal cord, though this appeared unchanged to the naked eye. The nuclear infiltration was most extensive in the anterior horns of the grey matter, and here numerous hæmorrhages were visible under the microscope, the nuclei themselves being subject to fatty degeneration. Fatty degeneration was observable in the capillaries of the spinal cord. Another highly remarkable peculiarity noticed by Dr. Oertel was a richly cellular croupous exudation on the ciliated epithelium of the canalis centralis of the spinal cord, completely filling the lumen of the canal, and extending throughout almost its entire length. Beneath the ciliated epithelium the tissue was for some considerable distance infiltrated with nuclei. A never-failing feature of diphtheria was the occurrence of *capillary hæmorrhages* in all parts of the body, but most distinct in the connective tissue capsules of those lymphatic glands that received their vasa afferentia from the mucous membrane affected.

Microscopic examination of the soft semi-fluid exsudate of diphtheria showed that it was composed of nuclei, large croup-cells, finely fibrillated coagulum, more or less altered pavement and columnar epithelium, the cells having undergone fibrous degeneration, molecular masses, and fungi. The latter (fungi) were moving, swarming and at rest, and both interstitial and intra-cellular. They belong to the species Micrococcus, were of variable form, extreme minuteness, and present in extraordinary numbers. They were certainly not identical with the *Leptothrix buccalis* found in the mouth. The movements persisted for forty hours after death, and were not arrested by exposure for twenty-four hours to a temperature of from 40° to 50° Fahr. They gain entrance into the cells by perforating the protoplasmatic cell-wall, as Oertel actually witnessed. The fungus is clearly a parasite of the worst kind, consuming the nitrogenous constituents of the tissues, at the expense of which it increases and so destroys the cells. Its development keeps pace with the intensity and danger of the disease.

Oertel then proceeded to produce a croupous inflammation in rabbits, by injecting ammonia into their trachea. He then inoculated other rabbits with the croupous exsudates produced, as well as with the exudation of true croup, and gives the following as the results he obtained:—1. Croup can be excited by chemical agents (ammonia) in the air-passages, and the pathological changes then produced can be clearly distinguished from those characteristic of diphtheria. The local processes occurring in the croup induced by ammonia and by diphtheria are indeed identical, but in diphtheria the wider migration of the fungus, which is the proper carrier of the diphtheritic poison, occasions a general infection of the system, which cannot be produced in croup. 2. The diphtheria occurring in man can be transmitted

with all its pathological characters and phenomena to animals; and this can be effected both by inoculation into the trachea as well as by subcutaneous injection. In the former case croup may be produced, but in both cases, and in precisely the same manner, general infection proceeds from the part where the inoculation has been performed. 3. The pathological chain of events produced by inoculation of diphtheritic matter is quite specific, and cannot be induced by septic, putrefying, or otherwise decomposing substances. 4. The general infection of the system in diphtheria spreads from the point of inoculation (the primary focus of disease), centrifugally through the tissue by the agency of the blood and lymph, without any organ in particular appearing to be specially selected by it. 5. By the introduction of appropriate material from such animals as have been inoculated, and in which general infection has been produced, into the trachea of healthy animals, undoubted diphtheria may be generated. 6. Diphtheria cannot be regarded as a primary disease with general infection of the system, which localises itself secondarily in one or other tissues or organs. 7. As a rule, the diphtheritic contagion usually gains access to and settles in the throat, trachea and air-passages; more rarely it affects wounds, being transported either through the atmosphere or being transmitted directly from the diphtheritic local affection of another individual. 8. The peculiar disturbances accompanying the diphtheritic process are occasioned by the vegetation of fungi, the botanical status of which has not as yet been accurately determined. 9. Healthy skin and mucous membrane appear to be but little disposed for the reception of the fungus. Lesions of the surface and catarrhal inflammation greatly increase the receptivity of the surface. (*Medizinisch-chirurgische Rundschau*, Jänner 1872.)

Reno-vesical Cantharidism, and the Remedies in general use for its Relief.—M. Gubler remarks that the noxious influence of cantharides is especially marked on the kidneys and bladder, the characteristic symptoms being well known. Morel-Lavallée distinguishes three forms of cystitis. The first, which is the simplest, is recognised by the presence of albumen in the urine; in the two others, which only differ in minor points, there are pains in the perineum and abdomen, with strangury and the discharge of false membranes. He thought that the active principle of cantharides set free by the acidity of the urine occasioned vesication of the bladder; but M. Bouillaud gave the true pathognomy of the symptoms observed. He showed that the topical action of cantharides is on the kidneys, of which the internal membrane experiences its vesicating action, in consequence of which the urine becomes charged with albumen.

It is really an endonephritis, and not a cystitis, that constitutes the point *du départ* of the albuminuria produced by cantharides. If the renal irritation becomes more severe, a nephritis parenchymatosa is established. It is astonishing that a substance which proves so irritating to the tubuli of the kidneys should be without effect on the blood-vessels. But M. Gubler shows that the albumen of the blood plays an important part in preventing the production of the usual effects of this and similar substances by seizing upon and forming combinations with them, so that their powers are rendered latent and are only manifested when set free by the renal gland into a fluid that contains no albumen: and he considers this to furnish a truer explanation of the peculiarities presented by cantharidine in the blood and in the urine respectively than that advanced by M. Bouillaud, who believed that whilst in the blood the cantharidine was rendered inert, owing to its combination with some alkali, as soda; for M. Gubler has satisfied himself that the combinations of cantharidine both with potash and soda are possessed of considerable activity. Important corollaries flow from this proposition of M. Gubler's, that cantharidism is neutralised in the vascular system by the proteic matters of the blood: thus it is obvious that it is useless to prolong the application of a blister after the vesicle has risen, since, starting from this point, its contact ceases to be immediate, and the solution of the cantharidine in the albuminous or albumino-fibrinous serum loses its irritating properties. Hence also cantharidine exerts its irritant action on all the emunctories which discharge fluids destitute of albumen, such as sweat and tears, and perhaps too the parotid glands. On the other hand, it escapes unperceived into all serous cavities, and probably into the submaxillary and sublingual glands, the saliva of which is viscous and stringy. In M. Gubler's wards, 176 blisters were applied in one year, and 16 instances more or less marked of cantharidism were observed, or 1 in 11; but in four of these the symptoms were very slight indeed. In one only was there severe hæmaturia. He does not believe that camphor possesses the slightest power of preventing the injurious effects of cantharides. (*Bulletin Général de Thérapeutique*, Dec. 30, 1871.)

Treatment of Varicocele.—Mr. J. D. Hill, of Birmingham, states that he has tried the plan recommended in the treatment of this disease by many distinguished surgeons, but he gives the preference to the following one. The patient's bowels are cleared on the previous day; the patient is made to stand for a short time, and the surgeon, who stands upon the left side of the patient, directs the assistant to draw the penis to the right side with his left hand. The surgeon next raises the cord with both

hands, the right being close to the external inguinal ring, and the left next the testis, the parts being so grasped that the veins are held forward, whilst with a sliding movement of the thumb, fore and middle fingers, the vas deferens is shot back with the artery out of the way. The right hand of the assistant now takes the place of the surgeon's, the operator carefully observing before he removes his hand that neither have the veins receded nor the artery and vas deferens advanced. The assistant with his right hand steadily fixed, and the surgeon with his left, now simultaneously make gentle traction upon the cord, when the surgeon with his right hand inserts three harelip pins through the scrotum, about one inch apart behind the veins. All hands are then removed from the scrotum, and the assistant directed to catch its fundus in his right hand, the penis being still retained in his left. The surgeon now takes a piece of a No. 12 bougie, a roll of strapping, or a piece of wood cut to an equal thickness about three inches long, and places it at right angles to the pins so as to exert uniform pressure upon each one, and with a silken thread of good thickness he encloses the compress, applying a figure of 8 twist over the end of each pin, coiled seven or eight times, or till the threads approximate, the threads being drawn only tight enough to prevent the compress from rotating beneath. The pins are now pushed home, and made to transfix a piece of cork cut about the size of a good-sized shot, after which the ends of the pins are cut off with nippers. The operation is completed by supporting the scrotum with a broad bandage, which is passed beneath it and over each thigh, a second bandage is made to encircle the body above the pelvis, and the two are prevented slipping by a piece of tape which is placed vertically at each side and fastened to a button-hole above and below. The patient is now sent to bed, and ordered a nutritious diet without stimulants. The best results occur in those cases in which there is an abundance of deposit around as well as within the veins, and in which the skin was adherent on either side to the scars corresponding to the pin-holes and continuous with pin-track cicatrices. Neither phlebitis, pyæmia, erysipelas, or abscess was ever observed. In 25 instances the testicle quite recovered its size, in 16 it became firmer and less irregular on its surface, in 14 it remained stationary. (*Birmingham Medical Review*, No. I. Jan. 7, 1872.)

Loose Cartilages in the Knee-joint.—Dr. Jackson, of Danville, Kentucky, records a case of this affection in which he cut down upon and at once removed the cartilaginous mass with good result. He has collected and tabulated thirty cases of this affection in which either the direct or subcutaneous method of removal was adopted. There were only two deaths. He refers to a paper in the *Lancet* for June 1861, in which an account is

given of M. Larrey's researches, who collected no less than 168 cases of extraction, 129 of which were by direct incision, and 38 by the indirect or subcutaneous method. The results stand thus:—

No. of Cases.		Cured.		Failures.		Deaths.
129	...	98	...	5	...	28
38	...	12	...	15	...	5

—(*Cincinnati Lancet*, Dec. 1871.)

Electro-therapeutics.—Dr. Keyes, of New York, discusses the value of galvano-puncture in abdominal aneurism, and, to ascertain the best method, undertook a series of vivisections upon dogs, the results of which were as follows:—1. A pretty firm, black, adherent clot can be formed about the positive pole, if the force of the current of blood in the vessel is retarded. 2. No such clot, or but an insignificant quantity, is formed about the negative needle. No more clot is formed when both needles are in the artery than when the positive is in and negative out. 3. The positive needle leaves a jagged, dry, impervious opening in the arterial wall. 4. The negative needle leaves a soft, patulous opening in the arterial wall. 5. The lining membrane is acted upon as much, or more, by the negative pole than it is by the positive. 6. A hollow needle does not convey the current as well as a solid needle. 7. Gold seems to form an equally good clot, and to act less upon the arterial wall than any other substance experimented with. 8. Gold will form a clot with a smaller current than will any of the other metals used. 9. Shell-lac is not as good an insulating substance as hard rubber. 10. It is expedient, if possible, in operating on the human subject, to insulate the needles well, and have the insulating material extend just within the wall of the vessel so as to act upon the latter as little as possible. He gives the details of a case treated by this method, from which, though unsuccessful, he draws the following conclusions:—1. A good-sized needle (insulated) and a powerful galvanic current may be passed through the peritoneum without exciting general peritonitis. 2. More electrolytic action is exercised upon the solids and fluids of the body through a solid than through a hollow needle. 3. Some electrolytic action upon the tissues takes place in spite of any ordinary amount of insulation, but is greatly modified by it. Action upon the wall of the aneurism consequently cannot be avoided, and it is unnecessary to employ hollow needles for the purpose of not applying the current until fluid blood is reached. 4. The danger of operating on abdominal aneurism by galvano-puncture is so insignificant that the attempt to treat by this method is justifiable. (*New York Medical Journal*, vol. xiv. No. 6.)

Sulphovinate of Soda as a Purgative.—Dr. Rabuteau has taken this salt himself and administered it to others, and finds: 1. That the sulphovinate of soda purges in relatively feeble doses; 25 grammes, or five drachms, are always sufficient; 10 grammes act on children and sometimes on adults. 2. The number of evacuations varies according to the quantity ingested; with a dose of 20 grammes in three glasses of water, it usually produces four or five stools; and from five to eight in doses of 25 grammes. The effects usually begin to manifest themselves an hour after it has been taken. 3. The sulphovinate is the mildest of saline purgatives; it produces no exhaustion or pain, and it may even cause colics previously experienced to disappear, as for instance in certain forms of diarrhœa, which it is capable of speedily arresting. 4. This salt causing no pain, no abnormal intestinal contraction, acting, in a word, as a type of dialytic purgatives, can be prescribed even during menstruation and pregnancy. 5. In consequence of its very slight flavour when slightly sugared, it is taken without repugnance by the most fastidious, and by children. 6. The sulphovinate of soda ought to be preferred to the citrate of magnesia, since it possesses the advantages, without the disadvantages, of the latter. In the first place, it is more agreeable to the taste, especially when dissolved in Seltzer water; secondly, it cannot lead to the formation of any calculus. It is well known that it is dangerous to continue the use of the magnesian salts too long, and no judicious physician would prescribe the citrate to old people, especially to those affected with catarrh of the bladder, lest the ammoniaco-magnesian phosphate should be precipitated. (*Revue de Thérap. Méd.-Chir.* 1871.)

Therapeutic Value of Myrrh.—In an essay on Myrrh by Dr. Delioux de Savignac, after describing its natural history, he states on good authority that it contains in 100 parts 2·60 of volatile oil, 27·80 of resin, 63·70 of gum, and 5·90 of salts and impurities. Its physiological action is comparable on the one hand to the balsamic substances, and on the other to the fœtid gum-resins. Its general stimulating properties are more active, and its local action is more lively, than those of benzoin, storax, the balsams of Tolu and Peru, and almost equal to that of tar. Like most resinous compounds, it was formerly regarded as resolvent and deobstruent, and it was prescribed for visceral engorgements. It is possible that in consequence of its stimulating properties it may render resolution more active, but as it was commonly combined with purgatives, these would play a great part in clearing the excretory passages and removing engorgements. It does not itself purge, but there is no evidence that it constipates as the resins generally do. The part of

the digestive tube which Dr. de Savignac believes to be most advantageously acted on by myrrh is the stomach. His experience fully confirms the stomachic properties that have been attributed to it from remote antiquity. He has seen painful dyspepsia rapidly relieved and even cured by the use of this gum-resin, either prescribed alone or in combination with other medicines, as bismuth, bicarbonate of soda, &c. Myrrh in these cases relieves the pain, awakens appetite, gives tone to the stomach, and renders digestion more active and regular. Besides these actions, it proves a general tonic in those gastralgiæ that are connected with various chronic diseases, and particularly with anæmia and chlorosis. But this last is often accompanied by amenorrhœa, and as strength returns the catamenia reappear. Cullen regarded myrrh as being only indirectly an emmenagogue; but Sydenham and many others have thought it exerted a direct action on the uterus. Its pectoral properties, he thinks, have been exaggerated, though it may aid other remedies in calming the cough and facilitating expectoration. He has found it particularly useful in vaginal and uterine catarrhs, and especially when applied topically in the form of vaginal injections, containing one to three drachms of tincture or vinegar of myrrh in a quart of water. Mattioli and some others have prescribed it with success in intermittent fevers, but further evidence is required on this point. Alibert admits its value as a topical remedy in skin affections, and it has been largely used for ulcers, for the dressing of wounds, and cases of caries and necrosis, and as an antiseptic in wounds of the soft parts of a bad nature, likely to become gangrenous. For this purpose the tincture of myrrh is best adapted. As an internal remedy, acting as an excellent stomachic, he strongly recommends the following prescription for the wine of myrrh:—

Picked myrrh	20 grammes.
Rind of Seville oranges .	15 „
Malaga wine	1½ pint.

Macerate for ten days, and filter. (*Bulletin Général de Thérap.* tome lxxxi., livr. 11.)

Treatment of Sore Nipples.—Dr. Conant Foster observes that this very common affection is the source not only of a vast amount of suffering to the patient, but frequently of discredit and annoyance to the practitioner. Yet its treatment will be found very simple and effectual if a little reflection be bestowed upon the conditions of its existence and the objects to be attained. Much might doubtless be done in the way of prophylaxis if we could begin early enough; but as this is seldom the case, especially in first pregnancies, where the need is the greatest, we must be content usually with remedial means.

Most sore nipples may be placed in one of two classes: either they are (1) excoriations at the top of the organ, attended usually with considerable tumefaction and consequent obstruction of the mouths of the milk-ducts; or (2) they are fissures, chiefly at the root, and often extending half-way round it.

Both of these forms are aggravated by the heat of the dress, the contact of the clothing with the ulcerated surface, the supposed necessity of frequent washings and dressings, &c. And of course the unavoidable effect of the repeated application of the child's mouth is another injurious element. To protect the nipple, as far as possible, against the action of these causes, is the primary object of treatment. In proportion as this can be done effectually, the cure will be rapid and complete. The chief points to be attended to are:—

1. To keep the parts constantly lubricated. For this purpose nothing is so beneficial as castor-oil. Every other unctuous substance, even glycerine, which perhaps is the next best thing, is far inferior to it. The reasons of this are, first, that it is with great difficulty rubbed off, and, second, that it has an anodyne property. It will be found still coating the ulcerated surface after the child has been nursed. The nipple should be smeared freely with it immediately after the child is removed from the breast, and as often as it nurses. No rags or lint of any kind should be used. These are not merely unnecessary: they are very injurious.

2. The nipple should be exposed as much as possible to the air, and the contact of the clothing prevented. This was and is often still attempted by means of the so-called "shells" and other contrivances, but ineffectually. These are heavy and hot and hurtful. The only thing which will accomplish the object thoroughly is a shield of the following construction:—It consists of a disc about two inches in diameter: in shape, the segment of a large sphere, from the centre of which rises a turret, high enough to reach above the top of the largest nipple, protecting it efficiently from the contact of the clothing. The under-surface of the shield is hollowed out, leaving merely a slightly elevated ring around the aperture through which the nipple is inserted. The turret is hollowed out and made flaring on the inside, so as to permit but the smallest possible extent of surface in contact with the organ. The entire nipple is thus left exposed to the air. The elevated ring around the base of the turret, by pressing gently upon the lacteal sinuses, favours the spontaneous emptying of these vessels, thereby removing an important source of irritation. The fluted under-surface of the disc helps to keep the shield in place through atmospheric pressure, and is generally sufficient, with the aid of the usual clothing, for this purpose. If anything more is required, a nar-

row band of linen, having a button-hole in the centre big enough to go over the turret, and attached by pins or otherwise to the dress, will suffice. The shield should only be removed for the child to nurse. After each nursing, anoint with castor-oil, and re-apply it.

The material of which these shields are made, viz. wood, combines in a higher degree than any other the important properties of lightness and coolness. All the essential conditions of treatment are thus fulfilled. Little else is necessary for a cure, excepting in the case of fissures, which are often materially benefited by the application of a point of nitrate of silver over the whole of their surface, to be followed immediately with a free unction with castor-oil. This will rarely require repetition if the other directions are attended to. The nitrate may also be of service in cases where exuberant granulations have been allowed to form on the excoriated summit. (*Canada Lancet*, vol. iv. No. 4, and *Medical Circular and Register.*)

The Extraction of Foreign Bodies from the Ear.—In the course of some clinical remarks, M. Miot observed that the extraction of foreign bodies that had gained entrance into the ear, although generally accomplished with facility, had been the subject of a host of inventions now for the most part forgotten. Instruments had been constructed often of great ingenuity, as though it had been desirable to forget that the best mode of extracting a foreign body in this situation is to inject a stream of warm water, varying in strength and volume. M. Miot then proceeds to treat of foreign bodies in the ear under the three heads of liquids, soft bodies, and hard bodies. In regard to *liquids*, he remarks that they may either enter from without or be formed, as in the case of pus, in the ear itself. Otitis is often set up by the prolonged retention of water in the lower parts of the meatus, after a general bath. At the outset it is sufficient to pass down a small wad of cotton wool and keep it there for a few seconds, but if pus have already made its appearance it should be carefully and frequently removed. Various substances are often injected for the cure of deafness by quacks, as laudanum, ether, chloroform, &c., but if these are employed at all they should be very much diluted. M. Miot states that Mdlle. Cléret did much harm in many cases by the instillation of sulphuric ether in the pure state. As regards *soft substances*, wool, cotton wool, peas, and many other substances are often met with, and these are generally extracted with facility, either with forceps or by injection of warm water. *Injudicious attempts to remove hard bodies* often give rise to distressing results. Whenever it is necessary to remove such with instruments, good light and properly constructed instruments, bent at a right angle and with

delicate limbs, should be employed. It is better to wait than to perforate the tympanum, or do other serious mischief. Irrigation with warm water should, speaking generally, first be employed. The foreign body may occupy different parts of the organ, as the external part of the meatus, the osseous portion, partly in the meatus and partly in the tympanum, and finally altogether in the tympanum, where it may either be visible or invisible. In the first case extraction is easy: care must be taken not to push it into the wider portion of the tube near the membrana tympani; but if this should unfortunately happen, irrigation may be had recourse to with every hope of success. It must be recollected, however, that the tympanic membrane may be broken down if the current of water be injected too vigorously. Should this plan not succeed, Richet's modification of Leroy d'Etiolle's curette or M. Bonnafond's canula forceps may be employed, or one of the instruments that M. Miot has himself suggested. A slender rod, capable of having the last quarter of an inch bent at a right angle by means of a wire running up to the handle, but which can be introduced straight between the foreign body and the wall of the meatus, is often serviceable in cases of oval and irregularly shaped bodies. Rounded bodies are sometimes extremely difficult to extract. In one very troublesome case he used two-elbowed extractors with success. Bits of glass tubing may be best removed after a little judicious manipulation by forceps, with a good otoscope and suitable instruments: the use of these is preferable to injection. The cases where the body is partly in the tympanum and partly in the meatus, chiefly consist of those where pins and pieces of wood have been pushed in during ineffectual attempts at removal. He gives an instance where he removed such a fragment of a lucifer by means of the sharpened point of an elbowed or articulated extractor. Lastly, the foreign body may be altogether in the tympanum, and either visible or invisible. He describes a case where, having recognised the presence of a foreign body (a button) in the tympanum, he attempted its removal by the injection of warm water, but the only result was so to displace it that it was no longer visible, and he was only able again to bring it into view by throwing in an injection through the Eustachian tube, and he then managed to extract it by a sound with a hook. Living animals may be extracted by irrigation, either at once or after the instillation of a little camphorated oil or weak solution of potash: if they have passed through by a small orifice through the membrana into the tympanum, the opening may be enlarged and irrigation resorted to. M. Miot states, in conclusion, that from clinical observation he is satisfied that a foreign body may remain for a considerable period in the tympanum without fatal results; and it is therefore not surpris-

ing that such a body may long remain in the external ear without occasioning appreciable symptoms. Secondly, it is by no means necessary to employ injections of warm water in *all* instances where there is a foreign body in the meatus, because some drops of water remain on the inferior wall of the meatus, and this collection may, when the patient is exposed to cold, prove very troublesome. (*Abeille Médicale* and *Journal de Médecine*, Janvier 1872.)

Litharge in the Treatment of Burns.—Dr. P. E. Andant observes that occasionally popular or empirical remedies turn out to be, when judiciously applied, of great value. In the country around Dax one such remedy is constantly applied in the treatment of burns. It is litharge, or the protoxide of lead. It has been known for centuries under the name of the *remède de Paban*. M. Andant has had occasion to observe its value, especially in burns of the first and second degree. In the case of a child suffering from extensive burn of nearly one-half of the body, consequent on its having fallen accidentally into the fire, he employed the usual Carron oil liniment. On revisiting the child, however, some hours after, he found, much to his astonishment, that in place of his dressing, the injured parts were covered with a brick-red matter. On asking the cause of this, he was told that Paban's remedy had been used, and was shown the ingredients of this substance. He immediately recognised it to be a mixture of litharge and olive oil. These two substances had been mixed and spread over the wounds. He did not interfere with the new mode of treatment, but watched its action carefully. The recovery was rapid. He has since employed it on several occasions, and always with success, even when the burns were extensive and severe. The litharge should be in fine powder, the oil recent and sweet, and the mixture of sufficiently firm consistence to permit it to be applied with a feather. (*Bulletin Général de Thérapeutique*, liv. 11, 1871.)

Sulphate of Lime as a Therapeutic Agent.—Dr. Artus, of Jena, states that phosphate of lime occurs for the most part in the animal body in the amorphous condition, though it is also met with in the crystalline condition, as in the pus from carious bones, and in concretions of the arteries of the urinary tubules and of the lungs. As a rule, the phosphate of lime appears to be a tribasic phosphate = 3 CaO, $P O_5$, but occasionally it appears as an acid phosphate = 2 CaO, $P O_5$, as in the three last cases just cited. As tribasic phosphate it occurs in all tissues and animal fluids, especially in the bones and teeth, in all ossifications and incrustations, and in the ashes of all histogenetic or organic materials. It is usually in the solid condition, but is

sometimes dissolved as in the blood. It enters the system from without, and there is no reason for believing it to be formed within it. There is no doubt from the constancy of its presence that it plays an important part in the nutrition of all the tissues. In rachitis, unnatural friability of the bones, and mollities ossium, it is defective, and Herr Artus suggests the following as the best mode in which it can be administered. Bones should be calcined, pulverised, and treated with hydrochloric acid, the fluid filtered, and the filtrate, which chiefly contains the phosphatic salts, treated with carbonate of soda till no precipitate falls, the precipitate collected on silk and washed to remove the common salt. Five or six times its weight of milk is now poured over it and allowed to remain upon it several days, at a temperature of about 70° Fahr. On the third day some finely powdered milk sugar may be added; as a result of this, a corresponding amount of lactic acid is formed, which aids in dissolving the phosphate of lime. After six or eight days it is diluted with water, filtered, and again reduced to a syrupy consistence by evaporation. The phosphate of lime thus prepared he terms the calcaria-phosphorico-mellitica, and prescribes it in small doses. (*Allgemeine Wiener Medizinische Zeitung*, No. 2, 1872.)

Acute Poisoning by Phosphorus, and its Treatment.—This form of poisoning is stated by Dr. Vetter of Dresden to result sometimes from its being prescribed in too large doses, as two grains by the mouth or per anum, or half a grain for several days together, and he thinks it should not be prescribed in the pure state at all. Fatty degeneration of the heart, liver, and kidneys, occurs in more chronic cases. In acute cases, icterus often occurs *after* the third day. Over-intense inflammation of the stomach is not a characteristic of phosphorus poisoning; but the gland-tubes are filled with epithelium, the cells being at the same time large, cloudy, and readily breaking down. The changes in the small and large intestines are still moot points. Ecchymosis of the serous membranes are common. The violence of the symptoms generally is in proportion to the quantity of the poison taken and its state of aggregation, and depends also upon the state of fulness of the stomach. The duration of an attack varies from a few hours to a fortnight, but death usually ensues in six days. The symptoms may be confounded with icterus gravis, or acute atrophy of the liver, with simple gastritis, peritoneal irritation, and menstrual colic. In the diagnosis the patient's statements are of value, and the vomit should be heated with sulphuric acid, with the object of obtaining bubbles of phosphuretted hydrogen, which, bursting, form luminous rings. Vetter mentions three modes of treatment:—1. On account of the rapid collapse, wine, tincture of musk, and good

beef-tea should be given, as Munk and Leyden recommend. Oil should be avoided, but mucilaginous drinks may be taken. 2. Bamberger's method: an emetic of sulphate of copper, then the administration of from four to eight grains of carbonate of copper every half-hour, followed by a dessert-spoonful of vinegar in water. The carbonate is thus converted into acetate of copper, and when this comes into contact with phosphorus at the temperature of the stomach, the fragments of phosphorus become coated with a black layer of phosphuret of copper, and at a later period with a red layer of metallic copper, which arrests the solution of the contained phosphorus. After a few hours, sulphate of copper is again given in emetic doses. 3. Andant's method. This consists in the administration of oil of turpentine, in about two-drachm doses in mucilage. The ordinary oil of turpentine of the shops is the best; it forms a crystalline mass with phosphorus, which is innocuous. Vetter combines all three modes of treatment, beginning with the emetic of sulphate of copper, then using the oil of turpentine, and following this up, after the lapse of a day or two, by a tea-spoonful of magnesia usta now and then. Where there is tendency to collapse, he gives port wine. (*Medizinisch-chirurgische Rundschau*, Feb. 1872.)

Relative Efficacy of Tincture of Hyoscyamus, Bromide of Potassium, and Chloral, in single doses, on Maniacal Excitement.—Dr. John A. Campbell, of Garland Asylum, Carlisle, states that being accustomed to give some of the excitedly noisy, the restless, and other cases labouring under insomnia, as well as the recent acutely-excited cases, some sleep-causing medicine nightly, and having frequently given the above-named medicines, he thought that if he gave them for some time in the same doses to the same patients, he might be able to form a tolerably accurate idea of their relative efficacy in the following respects:—1. Which was the surest sedative to excitement? 2. Which was the most certain sleep-producer? 3. Which acted most quickly? 4. What is about the equivalent dose of each? The method he adopted to arrive at the result he wished to attain was, that to all the excited, and then to all the simply sleepless patients, whom he could get to take medicine, he gave on consecutive nights two drachms of tincture of hyoscyamus, one drachm of bromide of potassium, and thirty of chloral, frequently repeating these experiments. He considered that by giving the medicines on alternate nights, if the patient's state changed, it would do so for all the medicines; and if any of the medicines had a cumulative tendency, it would not show itself. The number of cases selected was fourteen. To these he gave

each of the medicines forty-six times. The total results he got were, that tincture of hyoscyamus produced sleep on forty-two occasions, bromide of potassium on thirty-eight, and chloral on forty-three occasions. The average time in which effects were observed with tincture of hyoscyamus was 1 hour and 7 min., with bromide of potassium 1 hour 15 min., and with chloral 48 min. The average time the effects lasted with tincture of hyoscyamus was 4 hours 6 min., with the bromide 3 hours 54 min., and with chloral, 4 hours 26 min. Thus it appears that thirty grains of chloral produced effects more quickly, sleep more frequently, and its effects lasted longer than two drachms of tincture of hyoscyamus, and this dose of tincture of hyoscyamus was more powerful in these respects than one drachm of bromide of potassium. In a second series of experiments, Dr. Campbell increased the dose by one half, that is, he gave of tincture of hyoscyamus, ʒiij.; of bromide of potassium, gr. xc; and of chloral, gr. xlv. He only gave this dose, however, to the more excited of the patients. The total results he arrived at were (each of the medicines having been given on thirty-one occasions) that tincture of hyoscyamus produced sleep on twenty-four occasions, bromide of potassium on eighteen, and chloral on twenty-eight occasions. The average time in which effects were observed with tincture of hyoscyamus was 35 min.; with bromide of potassium, 46 min.; and chloral, 29 min. The average time the effects lasted with tincture of hyoscyamus was 3 hrs. 39 min.; with the bromide, 3 hrs. 31 min.; and with the chloral, 4 hrs. 27 min. Chloral in this dose, as in the former, shows its superiority, having produced its effects more quickly, sleep more frequently, and its action continuing longer than either of the other medicines. Tincture of hyoscyamus retains its place next to chloral. Finally, in a third series of experiments, he increased the dose to double that with which he had begun. He gave these doses in two cases only—to one of them on five occasions, to the other on one. In this dose again chloral proved more active than tincture of hyoscyamus, and the bromide proved utterly inefficacious where so much excitement existed. The results of these experiments, which however, from their limited number, he considers ought not to be regarded as conclusive, are—1. That both chloral and tincture of hyoscyamus are sure sedatives to maniacal excitement. 2. That of these two medicines chloral is the most certain sleep-producer. 3. That chloral acts more quickly than tincture of hyoscyamus. 4. That though bromide of potassium, in such doses, is a sedative to maniacal excitement, and to a certain extent hypnotic, yet it is not a sufficiently powerful sedative to allay intense excitement, or an

hypnotic to compel sleep where great insomnia exists. 5. That a two-drachm dose of tincture of hyoscyamus is not quite equivalent to thirty grains of chloral. Two and a half drachms would probably be as nearly an equivalent as could be given. From the different sedative and soporific powers of bromide of potassium, he thinks it is hardly possible to form an idea of an equivalent dose. It appears to him to be useful only when the excitement or insomnia is of a slight character. (*Journal of Mental Science*, Jan. 1872.)

THE PRACTITIONER.

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Original Communications.

ON THE TREATMENT OF DROPSY.

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THOUGH only the result of some diseased condition, either general or local, and not in itself a disease, dropsy becomes in many cases so prominent a symptom as to be the chief source of the discomfort or sufferings of a patient. Hence our treatment is often mainly directed to the removal of the effused fluid; and if this can be effected, not only will temporary relief follow, but, in not a few instances, a practical cure may be brought about, in so far that the ordinary occupation of the patient may be resumed for a longer or shorter period. The principles of treatment are so well known that it seems scarcely necessary to allude to them; but my object at present is to urge the carrying out of some of these principles more systematically and to a greater extent than is usually done, and to advocate the earlier and, if necessary, repeated recourse to certain measures which are generally looked upon as only to be adopted as "last resources."

Medicines may often do much in the way of getting rid of dropsical accumulations, but very frequently they are quite ineffectual for this purpose; in the former case their action will be materially assisted by attention to some of the points hereafter to be considered, while in the latter it seems worse than useless to continue their employment, if it can be shown that there are other means more likely to be successful which fairly claim a trial.

The measures to which I desire to call attention are—1. The maintenance of *rest* and of an *appropriate position*. 2. The use of baths, both *general* and *local*. 3. The employment of regular and systematic *pressure*. 4. Removal of the fluid by *operation*. One or other of these may be employed with advantage in different cases, and in many two or more can be combined.

1. *Rest and position.*—The object of this is, of course, to place the parts affected in a posture unfavourable to the action of gravity, so that the veins may not be over-distended, or the fluid tend to accumulate in dependent parts, and thus, with the aid of rest, to promote the absorption of what has already collected. It is in the case of anasarca of the legs, and œdema of the scrotum, that attention to this point proves most serviceable. When the former exists, the legs should be kept *uninterruptedly* in the horizontal position, or even somewhat raised above the level of the body; if the scrotum is affected, it should be elevated by means of a soft pillow underneath it, or by some form of suspensory apparatus. It is important to *persevere* in this for some time, and also not to neglect it in the early stages, before the fluid has accumulated to any great extent, for it is then that its effects are most marked. It is not necessary that the patient should be confined to bed unless other circumstances require it, and it is often advisable that he should get up: the affected parts, however, being kept in an elevated position. I have found the carrying out of this principle of "rest and position" most advantageous in many instances; thus, where the dropsy is due to an anæmic condition of the blood and a relaxed state of the tissues, including the vessels, it is generally sufficient to remove this altogether, along with attention to diet and the use of medicines, to improve the general condition. In local dropsies, also, as for instance that which occurs in connection with obstruction in a

vein, or pressure, a great deal depends on the due observation of posture; while it gives material aid in the relief of those which are the result of cardiac or renal disease, especially the former. It may appear unnecessary to say so much with regard to this apparently simple and obvious principle, but I do so under the conviction, the result of observation, that it is not followed out, as it ought to be, systematically and continuously; often it is not observed at all, and, still more frequently, only partially and interruptedly, so that any good effects produced are of only temporary duration.

2. *The use of baths.*—The promotion of a free action of the skin has always been looked upon as an important means towards the removal of dropsy; but in actual practice this end is often very inadequately carried out, and thus the good effects which we have every reason to expect from it are only partially obtained. Diaphoretic medicines are of very little value in these cases, and we must have recourse to the *regular* employment of some effectual bath, if we desire to excite the excretory functions of the skin sufficiently to produce any marked benefit. If it can be used, a general bath of course acts best, and either the hot-air or vapour bath is to be preferred; it is especially in the general dropsy of Bright's disease that these are valuable. In many cases, however, especially in cardiac affections, the patient cannot bear a repetition of either of these, and under these circumstances I have found marked benefit from the application of local heat and moisture in the following simple manner, by which the parts are kept in a perpetual local bath. Each leg is wrapped up, from the hip down, in a large flannel, wrung as dry as possible after having been dipped in very hot water, and this is enveloped in a piece of mackintosh of sufficient size, which prevents evaporation and cooling; the flannels are changed about every hour, care being taken to avoid chilling the patient, and the legs are well dried before a fresh application is made. I have often been surprised at the very satisfactory results of this plan, both in hospital and private practice, if persevered in for two or three days, and there is no difficulty, as a rule, in following it out.

The same method of treatment is also called for when the dropsy is purely local, the result of some obstruction in the veins

of the leg, and especially when due to a thrombus. Some patients who suffer from cardiac dropsy will not endure the little discomfort that attends the changing of the flannels, and in such cases it is advisable to wash the legs well every day with hot water, and to keep them wrapped up in cotton-wool and dry flannel.

Though not exactly a form of dropsy, still it may not be out of place to allude to the use of baths in the treatment of "pleuritic effusion," as the same object is sought to be attained here, viz. the absorption of fluid. I believe I have met with cases in which unmistakable proof has been given of the value of the hot-air or vapour bath in aiding the removal of such effusion; and my conviction is, that we do not employ this remedy to anything like the extent we ought in the treatment of this condition.

3. *Pressure.*—In certain cases I have found considerable advantage from the employment of steady and continuous pressure, applied by means of bandages, or some elastic apparatus, care being taken that it is made properly and uniformly, varying its amount according to the nature of the case. Not only is it useful in itself, but it materially helps another mode of treatment, hereafter to be considered.

In local dropsies, the result of venous obstruction, this does more good than anything else; and in some instances I have met with of œdema of the legs, which was apparently due to weak action of the heart, and hence feeble circulation, along with a relaxed state of the tissues, great benefit was derived from the application of a bandage. Again, in some cases of chronic ascites, marked improvement has followed the application of a roller very tightly round the abdomen, of which the following instance is a good illustration:—

G. F., aged 20, clerk, was admitted into University Hospital on June 12th, 1871. He had previously been an in-patient, in February 1868, suffering from an attack of pleurisy, and at that time his abdomen began to swell, being at first painful. He was discharged, however, and returned to his work; but in the early part of 1870 he became much larger, and went to another hospital, where he was tapped, but filled again very rapidly; he was subsequently tapped five times, at intervals of about two months, the last occasion being on October 21st, 1870. He filled

slowly for some time, but gradually became smaller, and was discharged. A fortnight before his admission he felt some shortness of breath, and his legs began to swell, at the same time the abdomen enlarging, and being somewhat tender. On examination, the skin of the abdomen presented evidences of former stretching, the umbilicus was everted, veins not enlarged. There was considerable distension, and this was plainly due to an irregular accumulation of fluid, principally towards the left side, limited by old adhesions. The liver could be felt at first, but afterwards became obscured; some tenderness was experienced on pressing it firmly. The general health was good, and the patient only complained of the discomfort of a distended abdomen and some dyspeptic symptoms. There was no jaundice. All attempts to get rid of the fluid by medicinal agents proved unavailing, and on July 12th the abdomen gave the following circular measurements:—

	Inches.
Opposite the ensiform cartilage	36½
Opposite the umbilicus	35½
Midway between these two points	37
Midway between the umbilicus and pubes	31½

About this time I commenced the application of firm pressure by means of a roller, placing poultices of digitalis leaves underneath it, which, however, I do not think had anything to do with the result. From this period an evident improvement took place, as shown by the form of the abdomen, the alteration in the extent and shape of the dulness, and the results of measurement; at the same time the patient expressed himself as greatly relieved. With regard to the ultimate result, suffice it to say that the patient left the hospital on August 31st, with the following measurements, and returned to his ordinary occupation, feeling quite comfortable, but still wearing the bandage:—

	Inches.
Opposite the ensiform cartilage	34½
Between the ensiform cartilage and umbilicus	31
Between the umbilicus and pubes	30

4. *Removal of the fluid by operation.*—I now come to the most important part of this paper, which is, *to advocate the early and, if necessary, repeated performance of paracentesis abdominis, in appropriate cases of ascites.* There cannot be a doubt that this

operation is generally looked upon with much dread, and that it is only performed with the view of giving temporary relief, whereas it may be safely employed as a means of permanent cure, so far as the ascites is concerned, and if this can only be removed the patient is often practically restored to health. The danger of wounding serous membranes and admitting air has been much exaggerated, and that fluid may be withdrawn from a serous cavity with most satisfactory results has been well proved in the case of pleuritic effusion. Now, with regard to the cases in which this operation is justifiable as a method of treatment, they are just those with which we are most likely to meet in ordinary practice, viz. where the ascites is the result of cirrhosis of the liver. In such a condition this becomes the *chief symptom* after a time, and the main object of our treatment is to take away the fluid, and thus give relief to the misery and discomfort which it produces. Experience proves the utter uselessness of medicinal agents in effecting this object, and on this account we are the more justified in proceeding to carry it out directly by operation, if it can be shown that this gives any fair chance of success. When the ascites is but a part of the general dropsy of cardiac or renal disease, of course paracentesis can do no permanent good, and therefore should only be performed if absolutely required, which, judging from my own experience, does not often happen; at the same time I may add that the presence of renal disease need not deter us from the operation, should this exist associated with cirrhosis, though it will necessarily render the case less favourable. Again, if ascites is the result of some cancerous tumour pressing on the portal vein, or of a definite cancer or tubercle in the peritoneum, the operation can only afford temporary relief.

In the cases, then, that I have indicated, viz. those of *ascites due to cirrhosis of the liver*, it seems to me to be a mere waste of time and of the patient's powers to continue a long course of purgatives, diuretics and diaphoretics, especially as these cannot be absorbed at all when there is such a condition of things within the abdomen, and they are much more readily taken up after the removal of the fluid; but I do not think much reliance is to be placed on them, and would rather urge the performance of paracentesis as soon as the abdomen has become tolerably full,

the operation being repeated again and again, should the fluid re-accumulate.

In the instances I shall bring forward I have not seen any ill effects from the operation itself, when proper care was exercised, nor did its repetition at all weaken the patient. It is not advisable to take the whole of the fluid away, and if it collects again it is best not to wait until the abdomen has become much distended before proceeding to its removal. Of course it is necessary to maintain the patient's general health by means of a nutritious diet, and, if necessary, stimulants may be given, as well as tonic medicines.

The explanation of the good effects of this treatment is evident enough. Communications normally exist between the portal system of veins and the general venous circulation, while new channels are formed in the adhesions which arise; thus the blood, instead of passing through the liver, is enabled to return through these normal and abnormal communications, which enlarge considerably, provided we can keep the patient alive for a sufficient length of time and relieve the great tension of the vessels, and consequently after a time no further dropsy occurs.

It appears highly probable that the employment of pressure, in the manner already indicated, might be advantageous in conjunction with tapping; that is, as soon as the wound is sufficiently healed, the abdomen might be tightly bound, and thus be prevented from re-filling. I have tried this in two cases, in which it proved successful.

I shall now proceed to give some brief notes of cases, on which I have founded the opinions expressed in the preceding remarks.

CASE I.—An account of this case has already been published in the *Lancet* of October 29th, 1864, the patient having been under the care of Dr. Waters, at the Liverpool Northern Hospital, who kindly permitted me to treat him. It is especially interesting to myself, on account of its exceedingly satisfactory termination, and also because it first suggested to me the adoption of "paracentesis abdominis" as a settled plan of treatment. J. G., aged 32, a sailor, much addicted to drink, was admitted into the hospital on December 29th, 1863. He had had hepatic

symptoms for three years, and ascites began in the previous July. He presented a most miserable, sallow, and cachectic aspect, and his abdomen was greatly distended, but no dropsy existed in any other part. He became so distressed that it was thought advisable to tap him, *merely to afford relief;* and on January 14th, 1864, 21 pints of fluid were withdrawn. The liver was then distinctly felt, having all the characters of cirrhosis well marked. The abdomen filled again, and, on February 28th, 30 pints were drawn off, which was rather too much, as the patient had some rather unpleasant symptoms on this occasion. It was found necessary to repeat the operation on March 19th and April 9th, 14½ and 25 pints being respectively removed on these dates. The patient improved greatly in appearance and in his general health, did not suffer in the least from the operations, and as he gave no evidence of the return of the effusion, he was soon discharged. Subsequently he was under my observation for some months as an out-patient, but I then lost sight of him. More than three years afterwards, however, he reappeared, having been to sea, and there had been no return whatever of the ascites, while his general health was excellent. The liver could still be felt, hard, contracted, and granular.

CASE II.—G. F., aged 42, admitted into University Hospital, July 26th, 1871. No cause could be ascertained in the previous history, the patient having lived regularly and steadily. The abdomen began to enlarge in March, and had gradually increased, at the same time being somewhat painful. On admission, he appeared emaciated and anæmic, complained of dyspeptic symptoms, with dyspnœa and cough, due to some emphysema and bronchitis. The abdomen was very large, the skin being glazed and shining, and the umbilicus protruded; there was almost universal dulness, and fluctuation could be readily felt. No swelling of the legs existed. The urine was free from albumen at first, but this afterwards appeared, and gradually increased until it became about one-fourth. The heart was weak, but free from valvular disease. On August 9th the abdomen became very tense, measuring 43¼ inches in circumference a little above the umbilicus, the skin looking inflamed, and the patient being much distressed. Paracentesis was performed to the extent of nearly 18 pints, which afforded great relief and caused no ill

effects. For some days it appeared as if the effusion was again collecting, then it began to fluctuate, and finally to diminish steadily, during which time the abdomen was tightly bandaged. He was discharged, and sent to Eastbourne, the circular measurement above the umbilicus being only 32 inches. Some months after I heard that there had been no subsequent enlargement.

CASE III.—M. A. C., a woman, aged 50, admitted into University Hospital, August 16th, 1871. She had been addicted to habits of intemperance, and had been ailing for about fifteen months. She first noticed a swelling in the legs, which extended up to the thighs and abdomen, and occasionally appeared in the arms and face. When admitted, she presented the signs of very abundant ascites, with much œdema of the legs, loins, and abdominal walls. The circular measurement opposite the umbilicus was 47¼ inches, and there was scarcely any tympanic sound on percussion, even in the highest part. The heart was healthy, but the urine contained albumen, the amount varying from one-fourth to two-thirds, and sometimes casts were present.

On August 26th the patient was tapped to the extent of 16½ pints, the operation being followed for a few days by slight local pain, and on account of the state of the kidneys peritonitis was feared. However, the pain soon ceased, and the patient felt much better. The swelling in the legs subsided considerably. On October 7th it was found necessary to repeat the operation, and 13 pints were taken away. No ill effects were experienced. As soon as the wound healed, pressure was employed, along with poultices of digitalis leaves, and from that time no fresh accumulation occurred. The patient was discharged, but came to the out-patient room from time to time, where I have seen her recently, and there had then been no return of the fluid.

In addition to these three cases, the one already alluded to as showing the satisfactory results of pressure, is also an instance of the value of *repeated* paracentesis, seeing that this was performed several times with ultimate success, though it is not clear what the cause of the ascites was in that case.

I venture to submit that the evidence brought forward in this communication is sufficient to give strong support to the course of treatment which I have advocated, especially when we take into consideration the improbability of any satisfactory results

being produced by the administration of medicines. Of course every precaution should be taken, both in the performance of the operation and in the subsequent treatment, and it would be well to explain to the patient and friends the possible dangers which might arise.

In conclusion, I desire to add a few words with regard to another operation, viz. puncturing the legs and scrotum, when considerable œdema exists in these parts. I am satisfied that this simple measure is also often too long delayed, and thus does not give the relief which it is capable of affording. This is particularly true in cases of cardiac dropsy, where a few punctures, repeated for some days, may give material help in removing the fluid altogether, at all events for a time, by relieving the over-distended vessels, and thus enabling them to absorb. Of course permanent benefit is not to be expected in these cases, but it is a great thing to relieve the very unpleasant feelings associated with this form of dropsy. In the case of the legs, it is below the knee that the punctures should be made, as, if they are made above this point, urine may come into contact with them, and lead to erysipelas. It is unnecessary to make large incisions, the punctures produced by ordinary hare-lip pins answering very well. Several may be made at intervals in dependent parts, also on the dorsum of the foot, if required; and they may be repeated, if necessary, so long as there is no sign of irritation. It is advisable to wrap up the limbs in cotton-wool and flannel, which should be frequently changed. As regards the scrotum, this may be punctured in several points on both sides, and then well fomented. Great care must be taken to keep this part clean. In some cases the operation causes it to become indurated, and this condition resists the further accumulation of fluid.

SPECTRAL ILLUSIONS.

BY W. SPENCER WATSON, F.R.C.S. (EXAM.)

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TAKING the organ of sight to include the whole of the nervous connections of the retinæ and their implantation in the cerebral mass, it may be laid down as a proposition easy of proof, *that any defect or changed condition of the optic nerve and its intra-cranial connections and prolongations, will give rise to alteration or disorder in the visual impressions conveyed to the mind;* and vice versâ, *that however perfect the nervous mechanism of the organ may be, any impairment of the optical mechanism of the eyeball will give rise to imperfect or disordered impressions in the mind of the person so affected;* and further, *that the changed conditions produced by mechanical, chemical, or electrical irritants on these parts will cause disturbance in the sentient centres equally with pathological changes in the parts themselves.*

It is, however, not easy to demonstrate the changed conditions of the *nervous* tissues even in the dead organism, and still less so (except in the case of the retinæ) in the living subject, and hence we are apt to speak of *functional* disorders—an expression which is in most cases a mere cloak for ignorance, as there is good reason for believing that physical, if not organic, changes are always present when functions are disturbed. In the case of most spectral illusions it is common to assume that the brain is *functionally* disturbed, and from a lack of any more definite knowledge we are content with such a description. On the other hand, physical changes have been adduced, with great appearance of plausibility, in explanation of these phenomena. Thus, Dr. Hibbert argues that certain kinds of spectral illusions, such as those of delirium tremens and malarious fevers, are analogous

to those caused by nitrous oxide gas. This gas, he states, when inhaled with a certain proportion of air, produces an *increased volume* of the blood in the body, and the effect of this is to intensify all sensations, and especially those of a pleasurable kind. Then he points out that from the obvious shrinking of the tissues during the cold stage of an intermittent fever, we may assume the extreme mental depression associated with this kind of fever to be due to a *diminution* of the volume of the blood in the patient's body, consequent upon the presence of malarious gases.

Having, then, in these instances a *physical* cause of the intensification of impressions and bodily sensations—painful in the one, pleasurable in the other—the phenomena of delirium may be explained by further supposing an increased susceptibility to reproduce, as if by memory, the images of objects, which, existing only in the mind as *ideas*, are represented to it (in its morbid condition) as *sensations*; just as in dreams we are unable to recognise the difference between ideas and sensations.

But however plausible such theories may be, the symptoms of the disease being entirely subjective, we have no means of putting them to the test of actual observation.

Though, therefore, experience and theory alike teach us that *some* physical change is present in the cases of *spectral illusions* associated with delirium, we are unable to place our finger upon the part of the nervous mechanism involved, and seldom even after death to discover the nature of the change. But in disease affecting the eyeball the conditions are altered. Perverted visual sensations may here be often explained by objective indications: as, for instance, when hemiopia is found, on ophthalmoscopic examination, to depend upon a partial detachment of the retinæ; or when complete loss of vision in the centre of the *field* of vision is found to depend upon a clot of blood in the region of the yellow spot. In such cases the ophthalmoscope helps much; but it has occurred to the author that by studying the optical properties of a model of the human eye, light might be thrown upon some of the *subjective* phenomena of vision, and especially of those termed ocular spectra, and certain cases of spectral illusions; for it is remarkable that the ophthalmoscope has hitherto thrown but little light upon this interesting subject.

The model with which his observations have been conducted consists of a glass globe, such as that used for "gold fish," covered by a dark envelope, with an aperture in front to represent the cornea, and another larger one immediately opposite it to represent an artificial dissection of the outer tunics exposing the retina, the latter being represented by a semi-transparent layer of gummed tissue paper. Within this globe a diaphragm representing the iris is perforated by a circular aperture for the pupil, and behind this hangs suspended a glass lens of a sufficient focal length to converge the rays admitted through the pupil upon the posterior part of the globe when filled with water. The water not only serves as a lens of a similar kind to the vitreous humour, but also acts as a convenient method of demonstrating certain effects to be hereafter described.

Now, it is obvious that if this model gives us an inverted picture upon the gummed tissue paper of objects in front of the pupil, we have at all events *some* of the optical conditions which obtain in the living eye, and practically these conditions are sufficiently fulfilled in the arrangement proposed.[1]

With this model it can be shown that any opaque object lying in the vitreous humour casts a shadow with a sharp outline upon the retina. This shadow would be mentally projected as an object in front of the eye, and (considering how easily many natural objects can be imitated by "shadows on the wall" formed by placing the hands in varying positions) would probably explain some stories of spectral illusions, such as the two following which are selected as typical of many similar.

An old widow woman, living in a retired village, came one day to the parson of the parish in a state of great despondency. She said she had had "a signal warning," and she was sure she would soon be in her grave, for she was continually haunted by "a skeleton." The parson having in vain tried to convince her that she was under a delusion, set about a systematic examination of her eyes. He first made her shut her left eye, and then

[1] Anyone who will take the trouble to dissect off the sclerotic and choroid from the posterior part of the eye of an ox recently killed, will be able to ascertain the accuracy with which objects in front of it are depicted in an inverted position upon the retina under such circumstances. The model proposed fulfils the same conditions.

asked her if she still saw "the skeleton." "Yes, there it was still." He then made her close her right eye and open her left, when to her astonishment the apparition had vanished. After several repetitions of this experiment the old woman became convinced that the dreaded skeleton was due to some defect in her right eye. She returned home much consoled, and all the better for her "signal warning" and its lessons. She no longer dreaded the "bogy," for whenever she wanted to get rid of it she had nothing to do but to wink at it.

A very singular story is related by Sir W. Scott, but with a more tragical termination.

A gentleman, a lawyer of good standing in his profession, and possessed of high intelligence and good sense, was observed by his friends to be suffering from a profound despondency, the cause of which he refused to explain. Being at length prevailed upon to confide to his physician the secret of his depression, he declared himself haunted by persecuting visions, so painful and so abhorrent, that, to use his own words, "his reason was totally inadequate to combat the effects of his morbid imagination, and he was sensible that he was dying, a wasted victim to an imaginary disease." The visions, it appeared, had first begun to haunt him some two or three years before, when he found himself embarrassed from time to time by the presence of a large cat, which within the course of a few months was succeeded by a gentleman usher in full court dress, with bag and sword, tamboured waistcoat, and *chapeau bras*. After some time this visitant was followed by one far more horrible to the sight and distressing to the imagination—a grisly skeleton, the image of death itself. "Alone or in company," said the poor invalid, "the presence of this last phantom never quits me. I in vain tell myself a hundred times over that it is no reality, but merely an image summoned up by the morbid acuteness of my own excited imagination and deranged organs of sight: science, philosophy, even religion, has no cure for such a disorder, and I feel too surely that I shall die the victim to so melancholy a disease, although I have no belief whatever in the reality of the phantom which it places before me." "In what part of the chamber," inquired the physician, "do you now conceive the apparition to appear?" "Immediately at

the foot of my bed," answered the invalid. "When the curtains are left a little open, the skeleton appears to fill the vacant space." "You say you are sensible of the delusion," said his friend; "have you firmness to convince yourself of the *truth* of this? Can you take courage enough to rise and place yourself in the spot so seeming to be occupied, and convince yourself of the *illusion?*" The patient heaved a sigh and shook his head. "Well," continued the physician, "we will try the experiment otherwise." Accordingly he arose from his chair by the bedside, and placing himself between the two half-drawn curtains at the foot of the bed indicated as the position of the phantom, inquired whether the apparition were still visible. "Not entirely so," replied the patient, "because your person is betwixt him and me, but I observe *his skull* peering above your shoulder!"

The doctor, despite his philosophy, made an involuntary start on receiving this circumstantial information of the proximity of the spectre to his own person. He resorted to other remedies, but without success. The sufferer sank deeper every day into dejection, and not long afterwards he died in the same distress of mind in which he had lingered on through the closing years of his melancholy life.

In both these stories the apparition was definite and constant in form, so far at least as the description of the patients themselves is to be relied upon; and it seems at first sight difficult to understand how an accidental opacity within the eye could give rise to a clearly defined object such as a "cat," or a "skeleton," or a "gentleman usher." But on further consideration the difficulty will appear less formidable. In the first place, it may be taken for granted that in each instance the sight was more or less impaired, and that all external objects were seen with a dim and hazy outline; everything, in fact, was seen through a mist or fog. But it is well known that objects are much altered in shape and appearance when seen through a misty atmosphere or in the dusk of the evening; and it is almost always under such circumstances that *ghosts* have been seen.

Sir Walter Scott tells a story of an apparition he himself saw under circumstances well illustrating the tendency to conjure

up definite forms out of extremely shadowy materials in a dim light.

He had been reading, "in the *darkening twilight* of an autumn evening," one of the works of a lately deceased friend, and had passed into an entrance-hall rather fantastically fitted up with old armour, the skins of wild beasts, and the like, when he saw right before him, and in a standing posture, the exact figure of his departed friend about whom he had just been thinking. He stopped for a moment so as to notice the wonderful accuracy with which his form was impressed upon the bodily eye, and then stepped onwards. The figure, *as he approached*, resolved itself into a screen occupied by great-coats, shawls, plaids, and such like. Sir Walter returned to the spot from which he had seen the illusion, but was unable again to rehabilitate the apparition.

In this case we have a highly imaginative, but also a highly educated mind, led away by fancy to conjure up out of the most flimsy materials the form and attitude of a friend upon whom his thoughts were then occupied. This, however, could scarcely have occurred in a bright sunlight. The *autumn twilight* was a necessary factor in the chain of causes destined to bring such an apparition before the mind. Now, it may be presumed that the obscurities and haziness of the transparent parts of the eye do for the victims of spectral illusions what the *autumn twilight* did for Sir Walter Scott. The imagination fills up the picture, and the mind, once deluded, takes a pleasure in keeping up the illusion, and, being either unwilling or unable to explain the phenomena in any other way, puts them down to supernatural agencies.

Thus, it is related in the original story of the old woman, that when she first told her clergyman that she constantly saw a skeleton, he, in order to disabuse her of her error, asked her what sort of a thing it was, and the only description she could give was, that "it was all bony like;" at the same time confessing that she had never actually seen a skeleton before the apparition of which she complained. It is therefore probable that had she been asked to draw the skeleton, the thing to which she gave the name would have been quite unrecognisable by an anatomist or anyone else.

Given, then, an eye the subject of old-standing disease, *e.g.* senile cataract, chronic choroiditis, or opacity of the cornea, or in fact any disease which causes the outline of objects to be dim, hazy, and undefined; given also an opacity in the vitreous in such an eye, casting a strong shadow upon the retina,—and it is then easy to understand how such a shadow would be interpreted mentally as a definite shape or apparition in front of the patient; and the general dimness of all visible objects would aid the imagination in such an interpretation. Extreme degrees of myopia and of hypermetropia probably have a similar tendency to assist in producing such illusions. Experiments with the model above described show these effects very clearly, and also make it clear that opacities in the cornea and in the anterior chamber do *not* produce a retinal shadow with a definite outline such as are produced by opaque substances in the vitreous humour. A disc of membrane or paper placed in front of the glass representing the cornea produces on the tissue-paper representing the retina a diffused shadow, amounting in fact to a diminution of the intensity of the light over the whole of the illuminated surface; whereas the same disc in the vitreous space casts a much smaller but a much more defined shadow. Hence we may conclude that opacities in the cornea do *not*, under any circumstances, give rise to the appearance of muscæ volitantes, or spectra; though they may, by cutting off the light, be accessory to the production of spectral illusions.

The gelatinous character of the vitreous will often give rise to a tremulous movement in any suspended film; and this can sometimes be seen with the aid of the ophthalmoscope. Such a movement would, to the mind of the person affected, make the object appear to be alive; and it can be imitated in the model by suspending a piece of india-rubber membrane in the water and then suddenly moving it or the model to one side: a very lifelike movement results, such as might easily deceive a person unacquainted with the structure of the apparatus and the nature of the substance introduced.

By a very simple arrangement the model can also be the means of demonstrating the sudden appearance and equally sudden disappearance of an object, when the eye is turned

quickly to one side. Supposing a membrane or clot to be suspended in the vitreous humour just outside the cone of light admitted through the pupil, when the eye is directed forwards, it will follow that when the eye is turned towards the side occupied by the opaque body, the latter will come into the course of the rays, and will consequently throw a shadow upon the retina and give rise to a spectral illusion. But it may also happen that the opaque body lies too far away from the centre of the vitreous to interfere at all with vision in all the ordinary positions of the eye, and yet it may be so freely moveable and so lightly suspended, that when the eye is turned very suddenly (as in looking over the shoulder at something behind one) it may be jerked into the illuminated portion of the vitreous, remain there for an instant, and then disappear. Such an opacity, so placed and so suspended, would perhaps explain certain remarkable cases of ocular illusions, such as that of the man who thought he was pursued by a person holding a hatchet always ready to strike him on the head. The ophthalmoscope would afford very little assistance in such a case, the opaque body being hidden behind the iris and ciliary processes, except during the sudden movements described.

It may be objected that in such a case as that of the eminent lawyer who fancied he saw first a "cat," then a "gentleman usher," and lastly a "skeleton," the changes of the apparition are inconsistent with the supposition of a fixed opacity as their cause. But, on the other hand, these changes having occurred only in the course of months, it is rather confirmatory of the view that they were produced by a clot of blood, which would by the ordinary process of absorption become altered in shape, and more attenuated and tissue-like, with the lapse of time.

It is, then, possible in this way to understand how in some cases spectral illusions may be due to *physical* rather than to *psychical* causes, and such a method of explaining them will be reliable—1. When there is no other symptom of cerebral disturbance. 2. When the apparition is constant in its form and outline. 3. When it appears only in a particular axis of the eye. 4. When it is visible with one eye only: this is conclusive of the local character of the disease, quite independently of any

other conditions, unless indeed the other eye is absolutely blind. 5. When ophthalmoscopic appearances, or those data obtained by oblique focal illumination, correspond with the descriptions of the supposed spectre. Whenever the spectral appearances change rapidly and are numerous and variable, it is possible that they are due to cerebral causes, and cannot be attributed to intraocular disturbance alone.

ON THE USE OF THE PULVIS GLYCYRRHIZÆ COMPOSITUS, A LAXATIVE PREPARATION OF THE PRUSSIAN PHARMACOPŒIA.

BY DAVID PAGE, M.B. EDIN.,

Kirkby Lonsdale, Westmoreland.

THE want of a mild but effective aperient, of convenient form, and without any of the disagreeable concomitants of most preparations of this class, frequently confronts the physician when he casts about him to meet a case of simple constipation with what he cannot readily discover, a pleasant remedy. "Cite, tute, et jucunde," may be said, I think, of the way in which the elegant preparation under consideration acts.

About two years ago I first became acquainted with the compound liquorice powder through Dr. J. Warburton Begbie, and since then I have, I may say, daily tested its efficacy as an excellent laxative medicine.

The majority of cases of constipation arise from simple or functional derangement, and perhaps in all of these a loss of power or atony of the colon is the faulty source.

In the aged, this condition is properly coincident with the gradual cessation of activity generally in the bodily functions; but in the young, more avoidable or accidental causes are at work, such as sedentary habits, irregularity, debility from other illnesses, and the like.

With regard to other cases of constipation, which can be traced to a deranged state of the upper intestine, catarrhal conditions are most frequently observed, and I have met with no more inveterate instances of this sort than those occurring in patients whose rule of life seemed to embrace the persistent use of the numberless quack purgative nostrums,

I may with truth remark, in passing, that, in England at least, more disorders of the primæ viæ come under the eye of the physician from this one cause than from all the natural and inimical agencies put together.[1]

For the treatment of simple constipation resulting from atony of the bowel, the compound liquorice powder is admirably adapted. Whether in simple uncomplicated torpor of the intestines, or in constipation accompanying temporary gastric disorder, the powder, alone or auxiliary to appropriate remedies, is preferable to other preparations of its class. In the former, our object is rather to call into play the peristaltic action of the intestine than to deplete by serous transudation from its walls, and, in the latter especially, no prudent practitioner would run the risk of aggravating the disordered stomach by the exhibition of purgatives possessed of irritant or drastic properties. The compound liquorice powder is composed of the following constituents, so prepared as to form when incorporated an almost impalpable powder:—Senna leaves, ʒvj; liquorice root, ʒvj; fennel seeds, ʒiij; sulphur, ʒiij; refined sugar, ʒxviij.[2]

The active ingredients are sulphur and senna. The action of the former, when administered alone, is frequently accompanied by tormina, and the continued use is apt to cause derangement of the mucous membrane of the upper intestine. The physiological action of sulphur appears to be upon the muscular coat, and less upon the mucous surface, while senna is a more active purgative, more apt to excite tormina, and acts more upon the mucous than the muscular coat. By the aromatic and stimulant properties of the fennel, and the demulcent action of the liquorice, itself a mild laxative, the effects of the more active constituents are judiciously modified.

The usual dose is a small teaspoonful at bed-time in water, with which it is easily mixable, forming an agreeable draught. Children, to whom Gregory's powder is a terror, readily take it with the belief that it is a sweetmeat.

[1] In the fourth volume of his Clinical Medicine, speaking of constipation, Trousseau remarks: "The use of these pills (aloes, colocynth, gamboge, and rhubarb) is certainly *less* injurious than is generally supposed; and the abuse of them in England shows that we, on this side of the Channel, are inclined to exaggerate their evil effects."

[2] This formula is given in the Pharmacopœia Borussica.

That the action of the powder is not to produce catharsis with serous transudation is proved by the motions, which are usually well formed and soft.

It is not my intention to enter into details of individual cases, but I cannot refrain from alluding to one instance as illustrative of a group where its use is preferable to other forms of purgative remedies.

Two years ago I saw with a practitioner in York a maiden lady, seventy years of age, who for some time had suffered from general paresis as indicated by ptosis of both eyelids, defective eyesight, habitual constipation, and difficulty of deglutition, especially of solids. I found that the taking of pills was to her a constant source of dread and annoyance, and suggested the compound liquorice powder, the adoption of which proved so pleasant and satisfactory that it was afterwards taken to the exclusion of the pills.

I have said that constipation most commonly results from functional derangement. Constipation connected with the simpler forms of structural disease, such as piles, fissures of the anus, and prolapsus, is also effectually treated by the powder; and in those grave cases, happily less frequent, but the saddest of all that the physician is called upon to treat, where structural changes within or without the bowel are slowly but surely encroaching upon its calibre, the constipation that gradually appears may for a time find relief in the same manner; although at a later stage, when the symptoms, formerly obscure, become so developed as to afford certain proof of the existence of an invariable obstruction, we must desist from harassing the patient with general remedies, and fall back upon the forlorn hope of local means.

In the early stages of hepatic disease, when the tympanitic state of the bowels masked long-existing ascites, and on the treatment of which Dr. Basham has lately contributed papers to the *Practitioner*, I have found the use of somewhat larger doses of the compound liquorice powder, twice a week or so, equally beneficial, and in my opinion preferable to that of mercury, jalap, colocynth, or podophyllin.

The general treatment of constipation must not be lost to view; and while the use of any purgative whatever can only

rank as a temporary expedient, the all-important observance of a well-arranged dietary, exercise, and habits of regularity, must be considered of paramount necessity in the attainment of permanent relief.

Dr. Warburton Begbie, writing to me lately, says :—

"Your experience of the compound liquorice powder fully confirms my own, and that in every particular. I have found it specially useful as a laxative in *young* and *old* subjects, and have formed a high opinion of its efficiency as a medicine in cases of atony of the bowels determining constipation.

"You are correct in supposing that it was introduced into practice here by me.

"I had the prescription from a gentleman long resident in Breslau, for whom the powder had been ordered by the distinguished Hasse.

"Many friends like yourself have borne a strong testimony to its efficiency.

"It is certainly an admirably arranged powder."

WESTMINSTER HOSPITAL PAPERS.

XII.

CASES OF OBSTRUCTED LABOUR IN WHICH THE CÆSAREAN OPERATION WAS TWICE PERFORMED AND ONCE AVOIDED.

BY DR. FREDERIC BIRD.

PART I.

"In almost all cases in which the Cæsarean operation has been performed in this country the patients have died." So wrote, nearly fifty years ago, that erudite and bold obstetrician who still lives to know that the justice of his criticism has remained undiminished by the long years that have passed. As then, so now. The Cæsarean operation is about as frequently demanded, its details as little varied, its results the same. The most successful operator of the present time is happy if he can claim an equal success with the German cattle-gelder of the sixteenth century or the Irish midwife exactly two hundred years later. Our continental neighbours have written of a far larger success, it is true, but it has scarcely found credence with those severer critics who have taken the trouble to analyse the cases from which such statement has been deduced. The Cæsarean operation still remains an almost sacrificial one, reversing from sheer necessity the teaching of British obstetrics; for the children thus preserved are comparatively many, the mothers disastrously few. Eighty-five per cent. of deaths has been stated by an accurate writer as the probable results in our day—a success, or rather

failure, about equal to that in the days from which two centuries divide us. Suggestions as to the time and manner of its performance have been offered frequently enough, but still the same mortality attends the section by a curved incision of the uterus as by its straight division—the determination of the pregnancy in the eighth month, as when nature's finger has indicated the fulfilment of the ninth.

It can only be from the faithful record of cases and careful observance of facts that any better rules for guidance can be elicited; and as probably as much or more may be learned from failure as from success, the following cases, culled from the practice of the obstetric ward of the Westminster Hospital, are recorded; and if no other teaching may be deduced from them, one at least of the cases may usefully show how this terrible alternative may, even when it seems most inevitable, be turned aside; and of all other results its aversion is most to be desired.

CASE I.—S. G. was a dwarf of 31 years old, whose height was but three feet ten inches, and whose figure scarcely presented the outward marks of deformity—fat and muscle had thrown a veil over distortion of bone. She went to offer herself as a candidate for emigration; spent a night on board an emigrant ship; was refused a passage, but returned pregnant. The date thus afforded served to mark the period of her pregnancy on admission into the hospital. Seven days before she was admitted she had been taken in labour, the pains speedily becoming severe, the liquor amnii escaping early on the third day with prolapse of the funis. No progress other than this being made, the ignorant midwife in attendance left her in alarm, and she remained without assistance of any kind for many hours, when Mr. Kempster, of Battersea, was called to her. He performed, with great difficulty, craniotomy, previously relieving the bladder of a large accumulation of fœtid urine; several portions of the fœtal skull were removed, but no real progress effected. Labour irregularly continued, the patient's powers rapidly lessened, and in such state she was brought to the hospital.

Aided by rest and stimulants, she was enabled to bear a minute examination, and the results obtained were, that the soft parts were in a state of sloughing as far up as the upper part of the vagina; that the pelvis was so contracted that not two inches

of space existed on the antero-posterior diameter; that the capacity such space might afford was materially lessened by the intrusion of the pubic bone on the left side; that all its measurements were still more distorted by obliquity towards the right side. The pulse was running at 152; the respiration rapid; the abdomen tympanically tense; uterine contractions still occurring feebly and irregularly.

With all her sad suffering and full knowledge of great impending danger, this small woman evinced a large mind, evolving equal patience, hope, and resignation; indeed, this was the only encouragement, for a more unwelcome case for the Cæsarean operation could not be conceived.

Late in the evening some slight rally occurred, enough to mark the moment for the operation, and I therefore performed it. The procedure may be briefly stated as—free incision into the abdomen, at once exposing the uterus, irregular in form from previous escape of liquor amnii, being moulded by the contained fœtus, save where the placenta, unusually placed immediately in front, rendered it more uniform; an incision into the uterus, avoiding the placenta; removal of it and the fœtus at once; avoidance of all bleeding into the abdominal cavity; compression of the uterus until it contracted; closure of the abdominal wound by suture; cold-water dressing; opium. Great sense of relief was expressed by the patient as soon as the ceasing influence of chloroform enabled her to judge of herself. Uterine pain ceased; her pulse improved, and she slept; but within twenty-four hours there came the fatal issue in the symptomatic order of vomiting, or rather effortless regurgitation of fluid from the stomach; restlessness; clammy perspiration; surface coldness; death.

Twenty-eight hours after death the body was examined. About two ounces of scarcely stained serum in the abdomen; no lymph; no blood. Uterus contracted, but incision gaping, save at its internal edges, which were in contact, but without adhesion. The pelvis distorted, twisted somewhat towards the right side, presenting the following measurements:—Antero-posterior diameter, one and a half inches; transverse diameter, four and a half inches; oblique diameter, three and a half inches, taken from the left obdurator foramen to the right sacro-iliac

synchondrosis; the opposite oblique measurement, four and a quarter inches. These of the pelvic brim.

From the os coccygis to the symphysis pubis, two and a half inches; from one tuber ischii to the other, four inches. These of the outlet. Taken as a whole, it will be seen by the engraved photograph, that although a space of nearly two inches

really existed in the antero-posterior diameter of the brim, and hence offering, according to some old and one recent writer, the possibility of extraction by craniotomy—such space only existed in that line alone; that the incurvation of the pubic bone so lessened the applied transverse measurements, that the total resultant area was too small to admit of the passage of a very much smaller body than that of the mutilated fœtus. It ought to be added, that, assuming the possibility of the patient's recovering from the effects of the operation, there could have been but little hope of her surviving the great tax upon constitutional resources that must have been imposed by the extensive pelvic sloughing.

(*To be continued.*)

XIII.

THE ALCOHOLIC TREATMENT OF WOUNDS AND ATONIC SORES.

BY THOMAS COOKE,
Assistant Surgeon to the Hospital.

HAVING read in a recent number of the *Practitioner* (January 1872), an interesting account by Dr. Newman of the antiseptic method of treating wounds as observed by him in a visit to Mr. Lister's *clinique*, I beg to lay before my professional brethren,—rather prematurely, I fear, but for the advantage of comparison and contrast,—the method of treating wounds which I learned when in Paris from Drs. Nélaton, Marc Sée, and Dolbeau, and which, slightly modified by myself, I almost invariably make use of in the out-patients' department of the Westminster Hospital. To state at once the position I take, I will first transcribe, with merely a few *italicized alterations* (claiming the same for my dressing), the series of advantages which Dr. Newman claims for Mr. Lister's mode of treatment:—1. The dressing is clean, inodorous, and singularly painless, *except on the first application.* 2. The formation of pus as a consequence of the injury, surgical or accidental, is, with due care, prevented *to a very great extent.* 3. Erysipelas and pyæmia, if not absolutely extinguished, are very rarely seen. 4. The wounds are free from irritation; no swelling of incised tegument and no local redness are to be noticed. 5. There is usually no constitutional disturbance (traumatic fever) after even severe operations. 6. The wounds heal rapidly.

From the foregoing lines it might be presumed that I desire to place my mode of treatment on a level with that of Professor Lister. This is not exactly my intention. I have carefully observed the effects of Professor Lister's treatment in the wards of Mr. John Cowper, of the London Hospital, and have there seen

results more favourable than those I have yet obtained by my dressing: very large wounds and deep accidental incisions (one of which had opened the internal jugular vein) healed absolutely without suppuration, or at least without the oozing of any liquid that the naked eye could recognise as pus. I have had under my care large flaps of the scalp which have adhered in two or three days to the denuded calvarium, and suppurated only slightly along their disunited margin. I have had cases where the walls of an hematic abscess situated beneath the tendon of the occipito-frontalis muscle have adhered in three or four days. I daily see suppuration most rapidly diminish, and cicatrization, almost without any further suppuration, ensue in consequence of alcoholic dressing in what was the day before a large suppurating and inactive sore. There is, however, a certain difference between the two results. I own therefore that I consider my dressing to be slightly inferior to that of Professor Lister.

But let us compare the expense of the two procedures, both with regard to instruments required, materials used, and surgeon's or dresser's time that must be sacrificed. An abscess is to be opened and dressed according to Mr. Lister's plan: I quote *en abrégé*:—

1. The integument must be thoroughly washed with carbolic lotion. 2. A constant cloud of carbolic spray must be kept up over the part, and it must envelope also the operator's hand. 3. The knife employed must be dipped in carbolic oil. 4. If any vessel should have been divided, it must be tied with prepared carbolised catgut. 5. A piece of "protective" oiled silk, coated with copal varnish, &c., cut a little larger than the wound, must be applied after having been dipped in the lotion. On this a pad of antiseptic gauze not less than eight layers in thickness must be placed. Between the seventh and eighth layers, a layer of mackintosh cloth must be inserted. 6. A roller of antiseptic gauze must be applied—I might continue and quote further (7, 8, 9, 10) about the "*guard*" that must be used should anything interrupt the operation; the *tent of lint* dipped in carbolised oil to be introduced before the sutures are inserted; the *special apparatus* required as a spray-producer during the larger operation, *e.g.* amputation; the very careful *filtration of the*

lotion for the spray-producer; the *sponges*, which must be dipped first in a carbolic lotion of one to forty, then in a lotion of one to a hundred, &c. &c.

Now let us suppose the same operation to be performed after the method I beg leave to recommend:—

1. The abscess is opened in the usual way; any clean knife will do for the purpose. 2. The wound is to be washed first with tepid water, then with the spirit lotion. 3. A pad of lint or some tow dipped in the lotion is to be applied to the wound, and, if the cavity of the abscess be large, partly introduced into the same. 4. A piece of gutta-percha tissue or oil-cloth is to be placed over the lint or tow, and a common bandage is to be applied. The "spirit lotion" used by Dr. Nélaton is "alcool camphré," which is nearly similar to the spiritus camphoræ of the British Pharmacopœia; Dr. Sée uses pure undiluted alcohol; Dr. Dolbeau, the same diluted with half water. My spirit lotion is composed of equal parts of methylated spirits and common water.

The carbolic system is, as a rule, never applied in anything like the careful manner prescribed by its author. Were it so applied, or rather, were it possible that it should be, no dressing, I believe, could supersede it. But where is the busy general practitioner, where is the surgeon to the out-patient department of almost any public charity, who could afford time to attend to one-half of the minute details above mentioned? Now, Professor Lister's plan has utterly failed wherever any one of these has been neglected. Hence its almost complete abandonment.

The spirit dressing is easy of application; the lotion I use is inexpensive; its therapeutical effects are very similar and almost equal to the best results ever obtained by the carbolic system. May I beg to recommend my dressing?

XIV.

A CASE OF HYSTERICAL PARAPLEGIA IN A PATIENT SUFFERING FROM EPILEPTIC MANIA.—TREATMENT BY BROWNING'S ELECTRO-MAGNETIC MACHINE.—RECOVERY.

BY EDWARD SWAIN, M.R.C.S.

E. S., a girl of 16 years of age, suffering from epileptic mania, and never having menstruated, was admitted into the Brookwood Asylum in October 1868, being unable to use either of her legs, and having in consequence to be carried into the ward on her arrival. Medicine was given to her to open her bowels, and, as she was very restless, a single dose of twenty minims of the liquor opii was administered: this produced sleep. She was anæmic, and generally weakly in appearance. She was both wet and dirty in her personal habits, but whether this was due to the same cause as the paralysis, or to her mental disease, it is not possible to say. A few days after her admission the use of the electro-magnetic machine was commenced, and was persevered in daily until her entire recovery. It was first tried by her taking hold of the handles: this produced no effect. The handles were then placed to her feet, but for about six days she did not feel any current at all. At the end of that time, however, she experienced a tingling sensation: the machine was used alternately to the feet, hips, and knees. About the end of December she was enabled to crawl about, and employ herself a little in cleaning the floors of the infirmary in which she was placed. She gradually improved, and during the second week in March she had her first catamenial period. In the beginning of April she suddenly discarded her crutches, which she had used for two or three months; and at the ball given to the patients in the following week, danced several times, appearing to have quite recovered both sensation and

motion. It is needless to say she was much tired after dancing. The epilepsy continued, with occasional attacks of excitement, until December, when she was discharged as recovered. She has since been a patient in the asylum, suffering from the same form of mental disease, but having exhibited no recurrence of loss of power over her limbs.

It would appear that recovery was not, in this case, due to the appearance of the catamenia, as before that period there had been gradual improvement; and the actual ability to use the legs properly did not occur until three weeks after the menstrual period: therefore, one is led to think that the electro-magnetism must have exerted a decidedly beneficial effect. The dirty habits continued only a short time after a certain amount of sensation had returned to the limbs.

THE ELIMINATION THEORY OF THE CURE OF DISEASES.

BY DR. ANSTIE.

PART II.

It is a peculiar but well-known incident in the fate of those who engage in scientific controversy with Dr. G. Johnson, that they are assumed by that gentleman to be his personal enemies, and that they are pretty sure to be accused of want of candour and conscience, at the very least. Having overcome the first weak but natural shrinkings of the carnal mind from this sort of reception, I lately pulled the string of this moral shower-bath, and down came the torrent upon me, *selon les règles*. In No. I. of the present series of papers, I expressed my belief that the theory of cure by elimination had been supported by a series of false analogies, based on erroneous views of the behaviour of the organism under the influence of various hurtful agents, and announced my intention of separately analysing each group of the supposed cures by spontaneous elimination. I only examined a single case—that of alcohol—and already I have incurred the major excommunication. It is evident that, as the argument in which I have engaged must be somewhat lengthy, I shall not be able to devote a supplementary paper to the refutation of each criticism which may flow from Dr. Johnson's able pen. On the present occasion, however, I find it necessary to answer two points, in his recent paper in a contemporary, which are strictly personal to me, and in which the imputation of inconsistency between my present views and those which I held eight years ago is put forward (in each case) on the ground of a singular misunderstanding, the removal of

which is important to our inquiry. I shall therefore devote the present paper to the refutation of these mistakes: and the reader will, I hope, soon perceive that personal sensitiveness has no share in urging me to this rejoinder to Dr. Johnson.

I am accused of inconsistency on two points:—Firstly, I am charged with having completely abandoned my former opinions as to the *vis medicatrix naturæ* as expressed in "Stimulants and Narcotics;" and, secondly, I am charged with having published conflicting conclusions (one set of which must be erroneous) on the question of the elimination of unchanged alcohol. Both these accusations are entirely and demonstrably incorrect; yet, as usually happens in such cases, there is some slight excuse for the mistake. That excuse is to be found in a want of clearness of definition, in my earlier writings, of which I am not at all ashamed now that I have had eight years of additional experience of the immense difficulty of expressing philosophical and scientific ideas upon medical subjects in unmistakable language.

1. As to the *vis medicatrix naturæ*. Dr. Johnson quotes my statement (in "Stimulants and Narcotics") that the modern physician is disposed to count himself the humble assistant of "Nature" in those curative processes "which she herself initiates, and very often carries through without our help, or in spite of our ignorant interference;" and on the strength of this passage he argues that, at that time, I upheld a view of the *vis medicatrix* undistinguishable from that which I now denounce as metaphysical and based merely on *à priori* arguments which have no support in observed facts. Now, I shall at once confess that the use of language so highly figurative, on a scientific subject, was an indiscretion characteristic of a comparatively unpractised writer, and that if this passage were carelessly read in isolation from the rest of the volume, it might lead to the supposition that I (at the moment of writing it) entertained vitalistic views, and supposed that "Nature," or "Life," was a "spirit of animation"—an actual entity—one of whose most important functions was to repel the assaults of disease. This misconception of my meaning, however, must have been immediately dispelled by reading the remainder of the work, the whole bent and purpose of which—expressed in a great variety

of arguments—is to show the utter baselessness of the vitalistic views, and the fact that they were a mere remnant of ontological speculations which date from pre-scientific times. In fact, it would have been sufficiently plain, to one who read the book with ordinary attention, that the expression "Nature" in the passage quoted referred to the general order of the universe as affecting the organism of man, and by no means to any specialised vital force resident within the human body. That Dr. Johnson did not so far honour my book as to bestow this necessary care on the study of it, is evident from a surprising statement in his recent paper, to the effect that it is only lately (and it might be interesting to ascertain exactly when) I had discovered that vitalistic views of the self-curing power of the organism were metaphysical, not inductive, in their origin. Alas for my wounded self-respect! I certainly had flattered myself—quite vainly, it appears—that I had denounced vitalism, eight years ago, in perfectly unmistakable terms, as *a metaphysical and therefore unscientific system.* The very preface of "Stimulants" stated this in as plain words as I knew how to use: and the central thought of the book—the argument against the conventional doctrine that "stimulus is necessarily followed by recoil"—hinged in great part upon the demonstration that that doctrine was not based on induction, but on the maunderings of the later Schoolmen, and the blunders of those who, at the Renaissance, revived and placed in a position of honour, of which it was absurdly unworthy, the sketchy and fanciful Timæus of Plato.[1]

2. The charge of inconsistency as regards my various statements as to the elimination of alcohol is based on a similar misunderstanding, from only attending to one-half of my words. It is true that in my conclusions from my own earlier experiments I admitted the possibility that as much as a third of a poisonous dose of alcohol might pass out of the body unchanged, and that at present I find, in agreement with Dr. Dupré, that only the most fractional proportion really so passes. Anyone

[1] Nothing can well be more instructive than to contrast the awful reverence with which the authority of this dialogue was regarded in the medical world for at least 200 years, and the notion one gets of it, as a mere *jeu d'esprit* not necessarily representing even the guesses of Plato himself, from the charming work of Professor Jowett.

who has read my researches with sufficient care, however, must be aware that the above admission, which ultimately proved incorrect, was not an error of direct observation; on the contrary—and this is a most important fact—there never has been any serious disagreement, as to the directly observed facts, between the Lallemandists on the one hand, and Dr. Dupré and myself on the other. I showed, and no one has been able for a moment to controvert it, that the facts observed by Lallemand only proved the elimination of infinitesimal portions of alcohol: and the latest researches (of Dr. Parkes) say exactly the same thing. *The only question has been as to the allowance for waste,* and on that point I was at first inclined to suppose that Lallemand, with his vast experience, must be right, and that much of the alcohol present in urine, breath, &c., must be lost in any attempt to recover it, owing to evaporation. But Dr. Dupré convinced me, by direct experiment, that I need have made no such allowance, and that in fact the waste of alcohol (by evaporation) is perfectly trifling, and could be made practically *nil.* He also showed that I had no need to concede a *period* of forty-eight hours of elimination as even *possible.*

So far, then, from my having had to alter any opinion that was based on my own researches, I may claim that the whole result of the inquiry since I first combated the elimination-view (*Cornhill Magazine,* 1862) has been uniformly, and very remarkably, in the direction of strengthening my original statements. Dr. Johnson is absolutely wrong in the statement that he has made respecting this alcohol question, as anyone will see who cares to look over the literature of it for the last twelve or thirteen years.

I promise that this shall be the last reference to any criticisms, personal to myself, that may be made; and I hope it will be understood that I have only entered on the above explanations because the questions that they touch are fundamental to the inquiry that we have in hand. In my next paper I shall resume the examination of particular instances of supposed elimination of poisons.

CASE OF COMPLETE BUT TEMPORARY AMAUROSIS OCCURRING DURING AN ATTACK OF SCARLATINAL ALBUMINURIA.

BY FREDERIC D. LENTE, M.D.,

Late Professor of Diseases of Women and Children in the University of the City of New York.

HAVING misplaced the May 1871 number of the *Practitioner*, I did not, until recently, notice the interesting case reported by Mr. Power, Senior Ophthalmic Surgeon to St. Bartholomew's Hospital, entitled "Case of Complete but Temporary Loss of Vision in an Attack of Scarlet Fever," and his request for reports of similar cases. Having met with one almost precisely parallel in my practice in the city of New York, in the winter of 1870, I offer it for publication in the hope that it may prove interesting to Mr. Power and your other readers. Mr. Power has examined the principal works on Diseases of the Eyes, and has been, he says, "much surprised at the exceeding rarity of reports of similar cases."

CASE.—Frank N., aged 10, general health fair, attacked by *scarlatina* November 1st, 1870: sharp attack, eruption and subsequent desquamation abundant. Great care enjoined and observed as to diet and exposure. Anasarca set in November 16th; no other symptoms whatever.

Nov. 18.—Has been on infus. digital. et potass. acetat. for thirty-six hours; anasarca increased; anorexia; bowels rather loose; complains of medicine nauseating him. I stop it. Urine not much diminished in quantity, but more than one-half albuminous sediment when boiled and left to deposit in a test-tube. ℞. Tinct. ferri mur. ♏x, q. 8 h.

Nov. 19.—Better; less anasarca; less anorexia; no blood in the urine, and but few granular casts; slight headache.

Nov. 20.—Morning: Some diarrhœa and vomiting; passages small and dark; anasarca increased; appetite *nil;* dull and stupid, but no coma; pulse 60, and slightly irregular; urine not materially diminished and of good colour; slight frontal headache. ℞. Full dose of hyd. chlor. mit., assisted by an enema if required; dry cups over loins, followed by hot poultice and oiled silk; hot-air bath, and anointing twice a day with lard; quantity of albumen, one-third. Evening: Vomited after calomel; repeated dose at 3 P.M.; only several small passages. Pil. cath. c., one q. 4 h. Pulse 70, feeble and sometimes intermittent; takes no food; albumen ½ +; granular casts abundant.

Nov. 21.—Bowels have moved several times; took two pills; has had two baths; feels a great deal better. No nausea; no headache; pulse normal. Continued baths *bis die.*

Nov. 22.—Better; urine almost normal in colour and quantity. No passage in twenty-four hours. To take pil. cath. c., q. 5 h.; continued hot-air bath, and recommenced iron.

Nov. 23.—Very little albumen.

Nov. 24.—A pint of urine in twenty-four hours; copious lateritious sediment; very little albumen. Stop hot-air bath; keep bowels open and continue tonic.

Nov. 25.—Symptoms similar to those detailed under date of 20th set in, and have continued until this afternoon; albumen abundant; specific gravity, 1026; pulse 80; temperature 98½°; moderate headache; dull and stupid. Commence bath again, and use injections of beef-tea and gin.

Nov. 26.—Was called at 9 o'clock P.M.; found him vomiting, very restless, drowsy; would not open his eyes; complained of headache; scarcely an ounce of urine in six hours; heavily loaded with ceric acid crystals; few casts; quantity of albumen *one-half;* pulse 80, fair strength. Took a full dose of hyd. chlor. mit. at 9 A.M., another at 2 P.M. No action; gave comp. cath. pill; fomentations around the body of strong infusion of digitalis; continue nutriment and stimulating enemata; milk by the mouth when he will take it.

Nov. 27.—Never opened his eyes all day yesterday until late in the afternoon, when, after a pretty free evacuation, he opened

his eyes, looked around, and said, "I can't see." Pupils are *normal in size*, and *respond well to light;* complains always of dull frontal headache, and it is difficult to get him to answer questions.

Nov. 28.—Patient suffered a good deal yesterday; very restless, evidently from headache, saying constantly, when interrogated as to his feelings, "It hurts." Was cupped on the temples freely, and had a blister to nucha; was ordered a solution of bromide of potass. gr. x, q. 2 h.: but required morphine during the evening, which acted well. After this, his mother thought he could see better, and he said himself that he could. He passed an increased amount of urine, with only a trace of albumen. Specific gravity, 1022; pulse 70, softer, slightly irregular. The condition of his intellect is difficult to describe in a few words. In one word, it may be said to be, like his vision, *misty*. He opens his eyes when aroused, and, when asked, *tries* his visual power, being now evidently anxious about it; but he appears to have only an impression of light, as he will not assert that he can see anything or anyone, and does not direct his eyes directly *on* any object held before him, precisely as an infant, in its first weeks, notices conversation about him, and seems to appreciate its meaning. Pupils quite active under the stimulus of light.

Nov. 30.—Yesterday, complained of severe pain in head, and "started" so much that his parents feared convulsions. Cupped on the temples, and had morphine; also applied ice in a bladder to head. To-day he is better again. Albumen has disappeared from urine; but the latter is "smoky," and shows numerous blood discs and granular casts.

Dec. 1.—Mind clearer, but moans a good deal when awake; says there is *something over his eyes.*

Dec. 2.—Is disposed to open his eyes to-day, and to look around; can see a large book held before him, and give the colour (red), but cannot make out the gilt letters on the cover, nearly an inch in length. For the first time says he has no pain in head. Temperature, 100·75; pulse, 90.

Dec. 3.—Better; no headache; but the slightest excitement causes pain over frontal sinus. Temperature, 98·5; sees decidedly better.

Dec. 4.—Better; can see large letters (an inch); says any-

thing "looks small;" asks, "Is this my hand?" "It looks like a baby's," &c. When asked to look at any object held in front of him, it requires a little time for him to get his eyes fixed upon it, as in the case of an infant learning the use of its visual organs; has required nutrient enemata until day before yesterday, on account of irritability of stomach; smiles and laughs a little, and begins to look like himself; urine inclined to be scanty, and generally promptly increased in quantity by fomentations of fol. digitalis around the body.

Dec. 6.—Albumen and blood have entirely disappeared from the urine. The least excitement, even reading to him, induces frontal headache.

REMARKS.—In the first place, I must apologise for the loose manner in which this case is drawn up. The notes were very hurriedly taken, and not with any view to publication. The progress of the case was very similar to those detailed by Mr. Power, except with regard to the duration of the blindness. It is, in this respect, more interesting and important than any of them, inasmuch as the parents would naturally press the physician for a positive prognosis as to the entire recovery of sight; as was the case with the parents of this boy. They were encouraged with the assurance that with great care as to diet, abstinence from excitement, and a very gradual resumption of the use of the eyes, especially as to reading, the vision would be entirely restored; and such was the case, but not until the lapse of three weeks; and care was required for several weeks after that. As to the pathology of the affection, various opinions have been advanced; but I agree with Mr. Power, that, in this particular case and his own, "the most reasonable explanation appears to be that given by Ebert and endorsed by V. Gräfe, to the effect that the retina and optic nerves, together with the descending tract of communication between the optic centre and third nerve, are unaffected; but that an effusion takes place, either into the cerebral ventricles or into the substance of the brain, effecting the compression of the tract of communication by which the optic nerves are connected with the grey matter of the cerebrum."

Reviews.

A Plea for Scientific Reform. A Letter to the Rev. Theodore L. Cuyler, D.D., on the Attitude of Physicians and Scientists towards the Temperance Cause. By G. M. BEARD, M.D. New York, 1872.

THIS pamphlet is a very able and manly statement of the reasons why the total abstinence view of the alcohol question is repugnant to the judgment of the great majority of medical men; and it also opens up the road to the consideration of a variety of problems as to which the medical profession will have great public functions to perform.

It appears that Dr. G. Beard (a well-known physician of New York) has recently published a work on Stimulants and Narcotics (which has not yet come into our hands), and the Rev. Dr. Cuyler, an advocate of total abstinence, has attacked Dr. Beard's opinions in no measured terms. It does not matter, at present, what were the exact original statements of Dr. Beard: it is enough for our purpose that Dr. Cuyler is enraged with him for denying that total abstinence is enjoined by the results of the best scientific investigations, and that he repeats the odious charge against the medical profession of having done much to encourage intemperance. Hereupon Dr. Beard writes the present pamphlet, with the general tone of which we heartily sympathise. The main points of his thesis are two: first, that the great cause of intemperance is *ignorance*, and its great cure must be the increase of all kinds of *knowledge*, especially of scientific knowledge respecting the effects of the various stimulants and narcotics; and, secondly, that in the work of reform it is neither to be expected nor desired that there should be complete uniformity between the views of the various reformers. He is quite willing to admit that the cry for total abstinence has had, and still has, its value; but he observes that it appeals merely to the emotional nature, and consequently has only a temporary efficacy, and that reform, to be lastingly effective, must rest, after all, principally upon exact scientific inquiry, of which there are but few and scanty traces in the sensational exhortations of the teetotal party.

The theme which is thus given by Dr. Beard will serve us as the foundation of a few remarks which we wish to address to the teetotal party. We ask them to prove their good faith as reformers by a little sober attention to the following questions:—

1. We want to know how they can justify the statement, everywhere repeated by their speakers and writers, that alcohol is nothing but a poison. If they are ignorant of the results of recent research, we can only say that they have no right to be uninformed and at the same time teachers. If they are not ignorant, they are aware that alcohol is a hydrocarbonaceous substance which can be taken in considerable daily quantities without provoking any other visible reactions than those which follow the ingestion of any hydrocarbonaceous food; that there is no known example, in the whole scope of our experience, of such a substance, not an aliment, being so dealt with by the organism; and, finally, that there is positive evidence that life can be sustained by alcohol, in the absence of all other nutriment, for a considerable period. Yet, in the face of these facts, the Alliance circulates a pamphlet (written, we are ashamed to say, by a member of our profession) which repeats the hackneyed and trebly disproved statement that alcohol is ejected from the body like a pure poison, and which pharisaically charges the mass of medical men with being encouragers of vice because they do not preach up a crusade in favour of teetotalism on the strength of an exploded physiological error.

2. We want to know what reasonable grounds the teetotallers have for treating drunkenness as a vice of altogether different type from a number more which depend on over-indulgence of the appetites. If they are ignorant of the facts which medical observation teaches on this head, again we say they have no right to lay down principles. If they *have* studied the history of the human nervous system and its weaknesses from a medical point of view, they must know that the tendency to drunkenness is, in by far the majority of cases, only one phase of a defective moral tone (very often congenital), which might just as easily have shown itself in half-a-dozen other forms of vicious self-indulgence. They are never weary of asserting that drink is the cause of three-fourths, five-sixths, nine-tenths, any preposterous proportion you please, of the total vice and crime of the country; and all the time they have never once seriously reflected (to judge from their own arguments) on the kind of evidence which would be necessary to establish such a fact. In reality, the strongest evidence that they can produce is the oracular statements of sundry worthy magistrates and judges, who are personally but little acquainted with the filthy homes and the generally degrading physical and moral surroundings of the

drunken wife-beaters and thieves who come before them at the police-office or the assizes; and who, with the narrowness of view which too frequently characterises the legal mind, can only see the last and most obvious link in the chain of causation which leads up to crime. And when we leave the case of the poorest classes, and examine the causes which lead up to drunkenness in the superior ranks, it is with a feeling almost of despair that we listen to the threadbare commonplaces of teetotal writers, for ever dinning into our ears that "drunkenness is only the legitimate consequence of moderate drinking." Here, more than ever, the most ordinary medical experience must convince us that no such simple explanation will suffice. The drinkers, among the classes in easy circumstances, are divisible into two well-marked groups, neither of which has any affinity, in the distinctive features of their lives, with the bulk of respectable society which indulges with moderation in the use of alcohol. A very large group owe their proclivities to drink to causes that are distinctly pathological, but have, in the first instance, nothing to do with the mere temptation of the presence of drink. Many of them are the victims of an inherited nervous system so imperfect and unstable as to be, from birth, unfitted to struggle with the pressure of physical pain or mental distress, and which causes them to yield with facility to the temptation of *anything* which offers the relief of momentary oblivion. And in many others the same state of imperfect equilibrium of the nervous centres is engendered by the pressure of circumstances —the ravages of painful disease, or the harassment of severe anxiety—which are constantly operating upon them. But even among those whose drinking habits are distinctly traceable to the constant presence of temptation, it is the greatest mistake to suppose that moderate drinking is the starting-point of intemperance. If we take the most ordinary instances,—those of commercial travellers, wine merchants, and others, whose occupation throws them constantly in the way of drink,—we shall almost always find that *the intemperate man was intemperate from the first;* that it was the lowering of his nervous stamina produced by immoderate indulgence which alone produced the tendency to the true alcoholic craving. And the same thing may be said of those occasional, and perhaps increasingly frequent cases, in which young persons, especially young women of the so-called respectable classes, give way to intemperance; it is the imprudent use of alcohol at an age when it is altogether improper, or in doses which are relatively large, which implants the craving for narcotic indulgence.

3. Again, we ask the teetotal party, in all seriousness, how they can venture to argue upon the causes which keep up or extend (if extended it be) the prevalence of drinking, while

ignoring the prodigious impulse to luxuriousness of all kinds, and not merely to alcoholic indulgence, which the special circumstances of our modern society supply. Viewed as the physician is compelled to view it, that society is seen to be dominated by one influence, above all others, which tells upon the most widely different classes with results that are substantially identical. That dominating influence is the fierce and reckless competition of our time. *La carrière ouverte aux talents!*—it has an imposing sound; and possibly Carlyle was right in saying that Napoleon's proclamation of that great idea might suffice to cover a multitude of his sins. But at least this is certain, that whatever nobler results are to flow from it in the future, at present its most conspicuous consequences are the mere growth of the coarser sort of material prosperity among the middle classes, and among the artisans who possess a profitable speciality; and, on the other hand, the almost constantly increasing pressure of a grinding pauperism upon the lowest ranks. It is strange, but it is undeniably true, that these apparently opposite results lead practically to the same end. The extremely poor are driven by the very misery of their lives to indulge in the cheapest sensual enjoyment that they can procure. The artisan whose special skill in a single matter yields him an income altogether excessive in proportion to his scale of mental cultivation, has no notion of spending his money on any object but his animal pleasures. And the artificially created fine ladies of the middle class, the wives and daughters of men who have suddenly arrived at wealth, are beset with the hundred temptations which idleness and luxury offer to those who have as yet never realised the higher aims which are open to them. Does anyone who knows society as physicians know it believe for an instant that drinking is the only, or even the most serious, snare for such people? Assuredly not: it is only one mesh in a vast network of deteriorating tendencies which besets them.

4. There is another aspect, however, of the teetotal views which to men of science and men of the world (in that better sense which implies a wide knowledge of and sympathy with humanity) makes them appear more hopelessly unpractical than ever. We refer to the essentially *feminine* or *clerical* way of regarding humanity and its weaknesses, which lies at the bottom of the belief that total abstinence can be usefully applied to society in general, as a measure of reform and precaution. The principle of asceticism as a remedy for the weaknesses of persons who are already thoroughly degraded in their moral sense, has a value which we all acknowledge: it is strictly analogous to the forced detention of a lunatic asylum. But it is a barbarous remedy, and a remedy that has failed in every age when applied by way of mere precaution to those moral natures that have not as yet

impaired their powers of self-control. It is exactly the same question over again which has been fought out with regard to voluntary celibacy; and upon that point, whatever some theologians may think, an immense preponderance of medical opinion has long ago decided unfavourably. Physicians know, if no one else does, that the evil consequences of the system are too great to be approved or defended for a moment (we speak, of course, of its influence in general, and not on those exceptionally calm and beautiful natures which nothing seems to injure). Well, we are threatened with a repetition of a precisely analogous experiment: we are to be made virtuous, this time, by sheer abstinence from another form of carnal pleasure, but, as before, the principle is that of simply shunning all temptation, all conflict, and all active self-restraint. Let the whole medical profession say whether they believe that that expedient is likely to be efficacious in keeping human minds pure and calm, and human nervous systems strong and orderly in action. We have no doubt as to what the answer would be, if we could hear it. And at any rate we must express our own decided belief (founded on no inconsiderable experience of nervous diseases and mental abnormalities) that every experiment of the sort, when applied to average human nature, is not merely useless, but seriously mischievous. The mischief may not always happen at once, it may possibly never affect in any very noticeable manner the person on whom the experiment was originally tried. It is when the principle comes to be employed as an educational influence, in the raising and training of families, that the worst consequences are apt to appear: and in this connection we cannot too plainly express our opinion, that ascetic principles in any department of education are almost unmixedly mischievous. The great lesson of life—that of self-restraint—is not to be learned in this way: on the contrary, the learner is taught an altogether false confidence in what seems a talisman, or charm, to keep him always right and safe. We entirely agree with Dr. Beard that such expedients can never serve more than a temporary and inferior purpose; and we are weary for the day when these one-sided plans for improving human nature will be seen, even by their present promoters, in their true proportions. How long are we to look for our real reformer—our "vieux pêcheur qui saura consoler les pêcheurs," because he will show a genuine knowledge of the flesh and blood of which all humanity is built, and will frankly admit that human nature, as we actually see it, never very precisely resembles either that of the spiritual sheep or the spiritual goat, but rather is an uncertain and varying mixture of them both?

Die Pflanzenstoffe in chemischer, physiologischer, pharmakologischer, und toxicologischer Hinsicht. Für Aerzte, Apotheker, Chemiker, und Pharmakologen, bearbeitet von Dr. AUG. HUSEMANN, Prof. der Chemie in der Kantonschul in Chur, und Dr. THEOD. HUSEMANN, Privat-docent der Pharmakologie an der Universität Göttingen. 8vo. pp. 1,167. Berlin: Springer. London: Williams and Norgate. Price 22*s.*

Handbuch der Arzneimittellehre. Von Dr. HERMANN NOTHNAGEL, Privat-docent an der Universität Berlin. 8vo. pp. 710. Berlin: Hirschwald.

NOT very long since we were talking to a medical man, by no means deficient in intelligence, on the subject of the progress of therapeutics, when, to our considerable astonishment, our friend observed, in the tone of a matter of course, that England was the only country where practical medicine flourished, and that "foreigners" had no intelligent ideas about treatment whatever. It was impossible to answer that assertion; we were reduced to silence; for it happened that only the day before there had been put into our hands the second of the works which head this notice; and the conception of Nothnagel, at any rate, as a writer inferior to our English authorities in intelligent ideas about treatment, was rather too ludicrous. We have never yet quite got over the shock inflicted upon us by the discovery that an educated English medical man could think in such a way; and our sensations on this subject have been revivified by the more recent publication of the magnificent work of the brothers Husemann. It is evident, in fact, that our medical countrymen are in general quite ignorant of many of the most important researches that have been made: and the result of comparing such a work as the new edition of Pereira (noticed by us last month) with the Husemanns' book more especially, is that one feels quite a pang of shame.

We would by no means be understood, however, as representing either of the works before us as faultless, or ideally complete; on the contrary, we have to urge against them several criticisms. But the fulness of knowledge, the patience of research, the open-minded fairness towards the labours of others, which their authors exhibit, form what should be a very useful lesson to English authors and students in medicine.

The work of the Husemanns is especially valuable, in consequence of the very complete knowledge which is brought to bear on the subject, both from a chemical and from a therapeutical point of view. As regards the first of these departments, it is true that we have repeatedly deprecated the encumbering of the medical student's mind with useless details of chemistry; but it must be understood that this is not such a book as could

be put before average youths who are still *in statu pupillari*. It is rather a book for grown men; for men, too, with high and serious aims. Moreover, it does not profess to present a complete scheme either of Materia Medica or of Therapeutics: it merely deals with the vegetable drugs, and as regards them it gives full and exhaustive information, chemical, physiological, and therapeutical, but only concerning the *essential* elements of the drugs; and it entirely omits anything like botanical description—simply naming the names and natural order of the plants employed. Moreover, each separate article is headed by a bibliography of all the important researches that have been made respecting the chemistry and the actions on the body of the substance which is to be discussed: a piece of generous work for which the authors deserve the lasting gratitude of all their readers. The main divisions of the book are (A) the pure Compounds, subdivided as (1) vegetable bases or alkaloids, (2 and 3) vegetable acids and indifferent substances; (B) Mixtures (etherial oils—resins—fats).

The obvious objections to this arrangement, which will by many persons be considered very serious, are, that it does not take each plant and present at a glance all the ingredients of its composition, and that it assumes, perhaps too hastily, that we know precisely which are the *active* ingredients. We think the only answer to the first of these criticisms is that (as before said) the book is not milk for babes, but meat for men: and that as regards the second, though the authors have perhaps gone rather too far, the objections to their course will probably be felt most strongly by those who are most ignorant concerning the remarkable progress which recent researches have made in determining the question of the activity or non-activity of the respective ingredients of plants. On the whole, we think the plan of presenting each plant (that is really useful at all) in its botanical order, and describing all its possibly useful ingredients in succession, is the most convenient, even for advanced students.

As to criticising the volume in detail, that would be impossible without filling the space of a whole number of the *Practitioner*. Let the reader, however, who desires to see the style in which the authors have done their work, turn to the subject of "Atropin," under which it is considered that all the real activity of the plant (at any rate of the leaves and root) may be included. The article commences with a bibliography in which no less than eighty separate works are accurately quoted, as the materials on which the article is built. It next devotes half-a-dozen closely-printed pages (with several interpolations of small type) to a lucid and really interesting discussion of the chemical questions as to the preparation and identification of atropia, and the very important matter as to the alleged superiority of English to German atropia;

and then gives nineteen more pages (also much of them small type) to the physiological and therapeutic actions of atropia and other preparations of belladonna. In short, without a word of verbiage, the article exhausts nearly every aspect of its subject. As an example, on the other hand, of original work, we might point to the very interesting researches of A. Husemann (with Marmé) on the subject of Helleborin and Helleborein, the two active glucosides of the black hellebore—a plant, by the way, that seems to have fallen into very unjust oblivion and discredit. As a masterpiece of intelligent patience and care, we may mention the manner in which the articles on the various "Digitalisstoffe" are executed. A more puzzling subject, and one more gratuitously confused by pig-headed chemists and experimenters, cannot be found: but here it is all most patiently and carefully unravelled. That department of the book, by the way, which deals with the vegetable acids and indifferently reacting substances will certainly surprise the reader by the wealth of matter altogether unknown to ordinary English students.

The work of Nothnagel is more in accordance with the convenient and desirable form of manual for students, and in that character is certainly far more complete, on the whole, than any English work on therapeutics that has been written as a class-book; but although its merits are exceedingly high in certain directions, it has faults which, in our opinion, are serious. The various remedies are classified as follows:—Narcotics, Resolvents, Astringents (with a sub-class of tannin-containing substances), Temperants (organic acids, inorganic acids, and carbonic acid), Tonics, Acrids, Excitants (sub-classes, alcoholica, pure resins, gum-resins with etherial oil, resins with etherial oil and volatile acids, balsams, "burning" agents [tar, creasote, naphtha, &c. &c.], animal excitants, pure etherial oils, nervines, digestives and carminatives, diuretics, expectorants, anthelmintics, and a special group containing phosphorus and oxygen), Nutrients and Emollients (sub-classes, saccharines, mucilaginous matters, glutinous matters, oily and fatty matters [animal and vegetable], milk, whey, koumiss, and pepsine), with, finally, a special unclassified place for hydrate of chloral, as not yet capable of being placed, according to its physiological affinities, with any confidence.

The readers of the *Practitioner* are aware that the above is a kind of arrangement to which we entertain very serious objections. We approve of the attempt to class remedies according to their therapeutical actions, but we cannot admit that the above (many of them time-honoured) classes of remedies will bear rational investigation. On looking down the index, an example instantly strikes the eye: the class of "Resolvents" contains *arsenic*, and we do not find this metal

included under any other heading of action. This strikes us as the *ne plus ultra* of description that does not describe: for assuredly the main characteristics of the therapeutic action of arsenic are not its power to "resolve" certain morbid processes (cutaneous), nor to destroy tissues when locally applied to a raw surface, but its remarkable combination of qualities as a *blood-tonic* which often proves more serviceable than iron itself, and a *nervine* which often restores both vigour and tranquillity to an enfeebled and irritated nervous system. Again, within the same group of "Resolvents" Nothnagel classes *all* the salts of potash: thus the nitrate of potash is classed as exerting a similar action to the carbonates. But there is no proof existing, which will bear close investigation, that nitrate of potash acts in any similar manner to the carbonates or to the vegetable acid-salts of potash, except in certain portions of its effects upon the nervous system and upon the heart. The undoubted instances of its therapeutic action are seen in the relief of the pain of rheumatism (as in Dr. Basham's well-known treatment), and the reduction (to some extent and under certain conditions) of the pulse frequency: and, on the other hand, in its remarkable influence, when its vapour is inhaled, upon the respiratory nervous centres. But, what is more important, we must insist that no classification which rates each drug as having only one set of actions, at all accurately represents what we know of the operation of drugs. Surely, to take one example out of a hundred, it is a most inadequate view of the action of lead-salts which classifies them solely as "Astringents." Again, there are whole classes, in Nothnagel's arrangement, the existence of which it is altogether difficult to justify: we would instance the "Temperants," which include the acids, organic and inorganic. What sort of an account of the effects, for example of the mineral acids is that which assigns them only this dubious and not very intelligible action? Another matter which we notice is, that the author, although admitting a "nutritive" class of remedies, does not go the length of frankly including the ordinary foods; whereas, surely, if fats and starches and oils were to be considered, then also the special value of meat, soup, and the other representatives of nitrogenous diet ought to have been carefully discussed, and their special therapeutic values indicated. Finally, to conclude our grumblings, there are sundry rather glaring omissions, even from a list of drugs merely as such. It is a most serious omission that there is no notice of nitrite of amyl, and an almost equally important one, that bisulphide of carbon is not named: and there are at least half-a-dozen other agents of very considerable importance, which are passed over.

On the other hand, all these defects are to a large extent

compensated by the exceedingly clear and intelligent way in which the action of individual remedies is discussed. In each case (after the briefest introduction relating to the botanical or chemical sources of the medicine) there is a full account (*a*) of its physiological effects on healthy men, (*b*) ditto on animals, (*c*) the theory of its operation, as far as this may be known, and, finally, an *aperçu* of all the therapeutic powers to which it possesses any reputable claim. No English work on therapeutics has ever presented a view, anything like so complete, of the actions of medicines; and we feel sure that those of our readers who may take up the book will be considerably startled at the amount of information, sure to be almost entirely new to them, which they will meet with. The article on bark and its derivation, for example, is one to which we have no parallel at all in English therapeutical literature, for concise statement, in a very few pages, of the result of a very large number of most important researches.

We must conclude, as we began, with the remark that these two excellent works of the Husemanns and of Nothnagel surpass anything of the kind which we possess in this country. They are very far from being perfect; there are many omissions in them (some, by the way, involving injustice to English observers), and in neither of them is the plan all that we can approve; but at least they will serve to convince all that read them carefully of the desperate need there is for setting up a standard of work, in this neglected subject of therapeutics, immensely higher than anything we have as yet been accustomed to.

Clinic of the Month.

Treatment of Pleurisy.—In the course of his lectures entitled "Sketches of Success and Failure in Medicine," Dr. C. J. B. Williams observes that the treatment which is successful in a large proportion of cases of acute pleurisy is chiefly antiphlogistic, and more local than in pneumonia. Venesection is required only in the plethoric and robust, and then only in the earliest stage of the sthenic form; but leeches or cupping may be used with advantage so long as there is pain with increased temperature. In very many cases there is little or no heat of skin; and in these he prefers a large blister at once, keeping it on not more than six or eight hours, and following it with a large poultice covered with oiled silk. This promotes the discharge from the blistered surface, and, acting as a comfortable fomentation on the side, may well be continued till the parts are ready for further blistering, should it be required. Of internal medicines, mercurial and saline diuretics are the best for the early stage of inflammation. If there be severe pain, he gives a few doses of calomel combined with morphia, till the pain is relieved, and then substitutes small doses of blue pill, with squill and digitalis, two or three times a day, until an effect is produced on the bowels, kidneys, or gums. Salivation is by no means necessary or desirable, the best operation of mercury being on the liver and kidneys; and when these are brought to act freely, the effusion, if serous, generally is stayed and will diminish, quickly in some cases and very slowly in others, without any further active treatment. Saline diuretics of citrate and nitrate, or acetate of potash, are useful in most cases. In mild forms of the disease mercury is not necessary; blisters and saline diuretics are sufficient, and may soon be changed for iodide of potassium in a bitter infusion, with daily painting the affected side with tincture of iodine. But sometimes cases of extensive pleuritic effusion are met with, which, either from original intensity or from not having been treated soon enough, will not yield to any or all of these remedies; and whenever the effusion is not so much as to cause such distress in breathing as to interfere with the comfort of the patient and especially to prevent sleep, there should be no delay in puncturing the chest. We may be more

confirmed in recommending this treatment if the symptoms render it probable that the effusion is purulent, and it may be often guessed that this is the case when there is general pallor, with partial hectic flush, alternations of chills and sweats, very frequent pulse, much weakness and tremulousness of movement, and more than usual tenderness and puffy feeling of the walls of the affected side. In cases in which the nature of the effusion is doubtful, the grooved needle may be introduced to settle the point; but Dr. Williams says that in all cases where there is great and continued effusion—such as to prevent sleep—the operation should be performed, whether the effusion is purulent or serous only. In cases of serous effusion, tapping to the removal of two or three pints may be enough to relieve the oppression. The respiration and circulation being thus set free, the rest will probably be absorbed. But in cases of empyema it is desirable to evacuate more matter, and repeated operations may be required. Dr. Williams' experience is in favour of avoiding the admission of air if possible, and for this purpose the simplest and most effectual means is the attachment to the canula of the trochar of a few inches of a perfectly flaccid tube, such as rabbit's intestine, or soft thin india-rubber, which permits the liquid to flow downwards freely, but, collapsing as the current flags, effectually prevents any air from passing upwards. After the operation the treatment should be of a sustaining kind. A course of cod-liver oil with a mild tonic, a generous but not too stimulating diet, and moderate exercise in a healthy air, greatly conduce to convalescence, and may prevent many evil consequences. In cases of empyema with a permanent opening in the chest, little improvement may take place till the patient goes to a healthy country place or to the sea-side; and then the discharge soon begins to diminish, and the health and strength are simultaneously improved. (*Medical Times and Gazette*, March 23.)

Treatment of Hydrothorax.—In a recent paper contained in the "Bulletin Générale de Thérapeutique" (vol. lxxxi., liv. 2), M. C. Paul gives eight cases of acute pleurisy which, as soon as the diagnosis was ascertained, he at once treated by puncture of the chest. The results were extremely favourable, and materially shortened the duration of the disease, all the patients being perfectly restored to health in the course of three weeks. M. Paul thinks the mode of treatment especially advantageous for private cases, and gives as a prognostic sign, that when the effusion coagulates immediately after being withdrawn, there is little or no tendency in it to re-collect.

Treatment of Delirium in Small-pox.—Dr. Harris Ross, in a paper on the late small-pox epidemic at Brighton, remarks that, with regard to the use of stimulants, he believes that in

ordinary cases they do more harm than good, but of their value in complicated cases he has seen marked instances. A very useful remedy in the delirium which so often accompanies confluent small-pox he has found to be one ounce of brandy, thirty minims of nepenthe, and a little warm water. He has seen patients raving and running about the wards, who within an hour of taking this dose were in a quiet slumber, and were invariably better the next day. He has tried chloral repeatedly, but has not found it answer anything like so well as the brandy and nepenthe. In severe cases he believes alcohol may sometimes do harm. A young woman was sent in with confluent small-pox of a very severe character, who had been taking brandy and port wine every three hours. She had no sleep for several nights, and was very delirious. Dr. Ross stopped all stimulants, put her on a simple farinaceous diet, and found her on his next visit much improved, and she ultimately recovered. Amongst the various methods of preventing pitting, as collodion, solution of gutta-percha in chloroform, strong solution of caustic, &c., he cannot say that anything appeared to him to have any effect except keeping the room dark. The plan advised by a recent writer, of touching all the pustules with strong carbolic acid by means of a camel's-hair brush, he thinks would be dangerous, at least in a state of confluent small-pox. (*Lancet*, April 6, 1872.)

Xylol as a Therapeutic Agent.—This hydro-carbon is likely to become of great importance, if its application in cases of small-pox is really followed by such good results as have hitherto been obtained at Berlin.

The Berlin *Klinische Wochenschrift* states that Dr. Zuelzer, senior physician at the Charité Hospital, had there administered xylol in cases of small-pox with the most complete success. It is given in doses of from three to five drops for children, ten to fifteen drops for adults, every hour to every three hours. It is harmless, because as much as a teaspoonful at a time has been taken. The most convenient form of taking it is in capsules, as already supplied by a Berlin firm, and containing three, five, eight, and twelve drops each.

The specific action is not yet clearly defined, but early information on this point is promised. The theory at present is, that xylol is taken up by the blood and acts as a disinfectant.

The absolute purity of the xylol is important, as toluol and other analogous compounds do not possess this peculiar action, and it seems there are some practical difficulties in obtaining xylol absolutely pure.

Xylol, or xylene $C_8 H_{10}$, was first separated from coal naphtha by Dr. Hugo Müller: it is obtained by fractional distillation until a distillate is obtained of about 140° C., boiling-point; this is mixed

with sulphuric acid, which dissolves xylol, forming xylol sulphuric acid: this acid is decomposed by dry distillation, and the xylol thus obtained is further purified.

Pure xylol is colourless; it has a faint odour somewhat like benzol, but different boiling-point—139° C.; specific gravity, 866. (*Pharmaceutical Journal and Transactions*, February 3, 1872.)

Xylol in Small-pox.—Dr. Hurman, of Bridgewater, states that during the last few weeks of the epidemic of small-pox in that town he has used xylol with the most satisfactory results. He does not, however, agree with giving it in capsules, as recommended, simply on account of the great difficulty usually experienced by patients in swallowing during the severe stages of the disease; nor is it miscible with water alone, as stated. He has given it in doses of twenty minims to adults every three or four hours, either in milk or mixture of almonds, the latter being preferable. Though believing in its efficacy, he is unable to define the nature of its action. (*British Med. Journal*, March 9.)

Treatment of Mitral Stenosis and Cardiac Affections generally.—Dr. Alexander Silver observes that the heart is not an organ we can touch and handle as we please, and yet we are able to deal with it almost as if it were, to make it go faster or slower, to make its beat powerful, or weak and uncertain: this we do through its nerves. Where hypertrophy is compensatory for difficulties in the way of the blood-stream, it is a thing to be encouraged, and therefore we must give iron, quinine, and such like remedies, which contribute to the general strength. Dr. Silver then refers to those special remedies which rule the nerve-supply of the heart. This nerve-supply is derived from two sources, or rather from the same source by two channels. The source is the medulla oblongata; the one channel is the vagus, the other is the spinal cord and ganglionic system; the special ganglia concerned in the movements of the heart being the lowest cervical and two upper dorsal, which receive their motor filaments from the spinal cord. Now, stimulation of the vagus slows, but does not necessarily weaken, the action of the heart (if very strong, of course it does both); so that gentle irritation of that nerve exercises on the heart an action similar to that of a fly-wheel on a steam-engine—it slows and steadies it. This is exactly what is wanted: and in digitalis there is the remedy which exactly answers the purpose, so that to it, combined with tonics, we must mainly look for overcoming the tendency to irregularity commonly extant. But sometimes a remedy is desired which has the opposite effect—an effect nearly identical with that of section of the vagus; and this remedy is found in belladonna. Its effects are most noticeable where digitalis does no good or does harm. Dr. Silver quotes a case where a

man had been taking digitalis. He found him one day in extreme distress, the heart beating feebly, tumultuously, and imperfectly. He promptly had the fifth of a grain of extract of belladonna injected beneath the skin of his arm, and in a few minutes he began to get better. In these two remedies are two most powerful engines; engines which, it is true, require careful handling, but which, being well handled, are capable of rendering good service. Nevertheless, they are only means to an end, and the end is only satisfactorily to be obtained by the avoidance of everything which will disturb the equilibrium of the circulation or of the economy at large. (*Medical Times and Gazette*, March 23, 1872.)

Treatment of Lupus Erythematosus.—Dr. Robert Liveing, after giving an account of the various forms of lupus, remarks that erythematous lupus is the *lupus of middle age;* it is more common in women than in men; it begins in the sebaceous glands and hair follicles; it spreads slowly, and has little tendency to form open ulcers; it attacks chiefly the papillary layers of the skin, and leaves smooth white scars, which are covered with cuticle, and are neither hard nor puckered. Under judicious management the progress of many cases is arrested, which would otherwise only pass from bad to worse. Our first care must always be not to do harm, and by the use of strong caustics produce a severe scar, when nature would have left but a smooth and slight one. Lupus erythematosus, in common with most other kinds of lupus, is always influenced unfavourably by exposure. No remedy can be regarded as a specific. Amongst the most useful may be mentioned cod-liver oil, arsenic, and small doses of perchloride of mercury, and perhaps the most generally useful of all, viz. combinations of the iodine and bromine salts. These compounds are contained in the Woodhall Spa, in Lincolnshire. If strong caustics are used at all, they should be applied with great care, and only along the border of the lupus patch. Of the milder remedies, blistering is one of the most useful, especially if it is combined with other treatment, such as the use of a weak nitric acid lotion, or the application of some form of tar. Hebra strongly recommends a plan by friction with soft soap, and the occasional use of soft soap plasters. The application of mercurial plaster is, perhaps, more generally useful than any other local remedy. (Ibid. April 20, 1872.)

Extracts from British and Foreign Journals.

On the Use of Carbonate of Lithia in Gout and Uric Acid Gravel.—By Professor Ditterich, of Munich.—Carbonate of lithia, according to Professor Ditterich, must always be considered as the most powerful remedy in gout and the morbid conditions depending upon excess of uric acid, and the salt has fallen somewhat into disrepute of late only in consequence of being unsuitably administered. The doses of from five to ten grains, recommended by Aschenbrenner, generally produce very unpleasant symptoms, as dyspepsia, catarrh of the stomach and bowels, with vomiting, &c., which require the discontinuance of the remedy.

These doses, accordiug to Professor Ditterich, are much too large to act beneficially, and the single dose should never exceed twelve centigrammes (a centigramme is the hundredth part of a gramme, which is about fifteen grains), and in twenty-four hours not more than a gramme should be given altogether. The next question to be asked in the treatment of gout is whether the case presents itself in the acute or chronic form, for in the former lithia is unsuitable, but in the latter the carbonate may be given in the proportion of half a gramme (about seven and a half grains) in a hundred and fifty grammes of distilled water, one or two teaspoonfuls to be taken every two hours. Thus administered the lithia causes no inconvenience, and generally affords relief in from eight to fifteen days, during which the painful parts are covered with socks or linen coverings. According to Professor Ditterich, the gouty swellings which have become hardened are not affected by the lithia circulating in the blood, until the adjacent parts of the limb have been brought into a state of congestion by stimulating embrocations. (*Schmidt's Jahrbücher der Gesammten Medicin*, October 1871, and *Med.-Chir. Review*, April 1872.)

Epidermic Grafting for the Cure of Ulcers.—This practice, suggested by M. Reverdin and brought into general notice in this country by Mr. Pollock, has lately somewhat languished in consequence of repeated failures. Mr. W. Anderson, however, in an essay devoted to this subject.

attributes this to the circumstance that too much has been expected from the plan, and also perhaps to the circumstance that some experiments may have been conducted without the care and attention to minutiæ absolutely necessary to secure a good average of success. The objects with which the plan is adopted are:—1. To procure the cicatrization of a granulating surface, where the natural processes of repair appear to be insufficient or more or less exhausted. Such cases are not unfrequently seen where extensive burns or scalds have occurred. 2. To hasten the healing of an indolent ulcer, and particularly to shorten the tedious progress which so often defies the completion of the cicatrization of a sore which had perhaps up to a certain period made satisfactory advance. 3. In the case of any active and healthy granulating surface, merely with a view to increase the natural rapidity of cure. 4. To diminish cicatricial contraction, and consequent deformity, the presence of a number of islands of repair tending to lessen the traction upon the adjacent healthy skin. The processes to which the name of skin-grafting has been applied have a rather wide range; large portions of the entire thickness of the skin have been successfully transplanted, and new centres of growth have been initiated from almost invisible segments of integument, from mere scrapings of epiderm, and even from free epithelial cells contained in the serum of a blister. The smaller portions have been grafted by mere superposition, by being forcibly thrust into the granulations, and by implantation into incisions made for their reception. The grafts may be taken from the patient himself or from another person. A recently amputated limb, too, has been found to yield serviceable material. Mr. Anderson has made a series of experiments upon the different modes of grafting mentioned above, and found that in a few cases all the plans succeeded; the surface grafts, however, usually showing signs of extension some days in advance of those implanted, often as early as the third day; and maintained the advantage thus gained throughout: but on the average more than one-half of the superposed segments failed to take root, and in some cases all were displaced by pus formation. The majority of those forced into the granulations became surrounded with little areæ of suppuration, and were destroyed. On the other hand, nearly all of the pieces inserted into incisions became adherent. In these cases unmistakable signs of vitality were generally visible on or about the seventh or eighth day, but sometimes much later; on one occasion no evidence of existence being manifested until the end of the third week after transplantation. As regards the depth of integument required, more than one-half of the grafts which included the whole thickness of the skin acted well when imbedded in incisions, but those

laid upon the surface were much less successful; where the segment consisted of the cuticle and papillæ, failure was the exception, but here, too, the advantage was on the side of those imbedded in incisions. Only a small proportion of the purely cuticular sections became centres of growth, and action from these points was almost always feeble and slow. The results of Mr. Anderson's experiments did not appear to be influenced by the size of the grafts; the most minute grafts were indeed more frequently lost than those of somewhat larger size, but he thinks this was probably due to the absence of the younger epidermic cells in the former. A healthy sore with a minimum of discharge yields the best results after transplantation, but undue pus formation will not necessarily prevent, although it must endanger, success. Mr. Anderson limits his applications to strips of linen soaked in water, warmth and moisture being preserved by the use of oiled silk; daily renewal of the dressing without disturbance of the grafts may be readily effected. (*St. Thomas' Hospital Reports*, 1871.)

Gangrene of the Lung.—Prof. E. Leyden, of Königsburg, contributes a paper on this subject to Volkmann's "Collection of Clinical Essays," in which he remarks that in gangrene of the lung the sputa exhibit to the physician the anatomical changes taking place in the organs affected, an advantage that is possessed but in a minor degree by the urinary secretion alone, in cases where the kidney is affected. Traube has drawn a definite distinction between the putrefaction taking place in the bronchial secretions and that accompanying the disintegration and ulceration of the pulmonary tissue—in other words, between putrid bronchitis and putrid disease or gangrene of the lung. The differential diagnosis is based principally, though not exclusively, upon the characters of the sputa. "The disgusting odour of the sputa, their large quantity, their dirty greenish-yellow colour, their disposition to form three layers—an upper, greenish-yellow, opaque, and foamy; a middle, translucent, albuminous, and of serous consistence; and a lower, of yellow colour, opaque, and having all the aspect of a pure deposit of pus and the detritus of pus-corpuscles—and lastly, the presence in them of dirty yellowish-white, pappy, soft masses, varying in size from that of a hemp-seed to that of a bean, and with smooth surface and extremely fœtid odour, in which Virchow first pointed out the presence of acicular crystals of fat,—are all appearances that may occur both in chronic bronchial catarrh with bronchial dilatation and in gangrene of the lung. The presence of such sputa proves nothing, except that generally a disintegrating process is taking place in the respiratory apparatus. The question is, whether this disintegrating process occurs within the intact

bronchia, or is associated with destruction of the parenchyma of the lung."

The surest proof of the destruction of the lung-parenchyma is obtained from the presence of fragments of the parenchyma, that is to say, of pieces of the broken-down tissue of the lungs. Traube describes such fragments as being of greyish yellow colour, with villous margins, of dirty aspect, and when viewed under the microscope as composed of an elastic transparent colourless matrix, in which much finely granular detritus is distributed, numerous yellow fat-drops, masses of black pigment, and many large acicular crystals of the fatty acids. Elastic tissue is never present, according to Traube, but it was observed in Oppolzer's clinic on several occasions, and in two cases the fibres were disposed in a mode corresponding to the arrangement of the alveoli. The rod-like and round vibrios constantly observed by Leyden and Jaffe to be present in the shreds of gangrenous lung and in the putrid sputa, are undoubtedly associated with the chemical processes of decomposition taking place in the lungs, though it is uncertain whether the fungus is the cause or merely the accompaniment of that process. Jaffe found that volatile fatty acids were present, and in particular butyric and baldrianic acids: in some, but not in all instances, ammonia and traces of sulphuretted hydrogen; with leucin, tyrosin, and traces of glycerin. The process is, in fact, quite analogous to the ordinary process of putrefaction. Other general symptoms of gangrene of the lung are, that fever usually of an asthenic type is present; the most severe cases terminate most rapidly in a typhoid state; cough is also a common and troublesome accompaniment, and leads in some cases to the bursting of a blood-vessel; the debility of the patient is such that he is always confined to bed, or should be so; pleurisy is commonly set up, as in the progress of the disease the portion of lung affected approximates that membrane. In regard to the etiology of gangrene of the lung, it develops from a great number of pathological conditions, as well as from pneumonia, which was formerly regarded as the only cause. This happens especially in debilitated subjects, old people, drunkards, and where the early stages have been neglected. In such cases the consecutive gangrene is usually diffuse. It may develop also on the side of the vessels, as from emboli, which are themselves the carriers of a putrid process. This occurs most frequently in surgical and puerperal pyæmia. A relatively frequent cause of metastatic (embolic) gangrene is the thromboses that occur in acute diseases, as in typhus, recurrent fever, and small-pox. A rarer form is that associated with caries of the temporal bone. It may arise again on the side of the bronchi, in those cases where foreign bodies have entered the trachea, such as cherry-stones, fragments of bone, or the matter of an abscess

which has formed in some adjoining part (retro-pharyngeal abscess, abscess of the vertebræ, or of the liver); more frequently still, it results from the perforation of an œsophageal cancer in one, and for the most part the right, bronchus; and occasionally, as Dietrich has shown, from the retention of bronchial secretion in bronchial ecstasis and other abnormal cavities, and even, though extremely rarely, in tuberculous vomicæ. Lastly, it may arise from injury, as from stabs and contusions. The duration of the affection is several weeks, even in slight cases, and severe cases may extend over several months. Between a fatal issue, which usually occurs accompanied by the phenomena of a septic fever, and recovery, a third state may be noticed—that of incomplete recovery—in which the gangrenous ulceration gradually ceases, though a cavity lined by a pyogenic membrane remains; this furnishes a purulent thin fluid secretion, and relapses on exacerbations of the disease are easily induced by exciting causes. Gangrene of the lung is undoubtedly a serious affection, but it is too much to say, as Niemeyer does, that recovery is exceptional. Laennec observed several cases in which large gangrenous caverns had formed. He treated the disease with leeches, cold poultices to the head, sinapisms, and blisters, and internally with mixtures containing ipecacuanha, laudanum, musk, &c. Skoda obtained more favourable results from his mode of applying turpentine inhalations. Turpentine, however, has only very slight disinfecting properties, and objections may be raised to most other methods of treatment by inhalation. Thus, chlorine water, when inhaled, immediately produces violent coughing; permanganate of potash is so easily decomposed that little or none enters the smaller bronchi, even much less reaches the gangrenous mass. Inhalations, however, of carbolic acid solutions containing from two to four per cent. are of service when employed from one to three times daily, or the same acid may be taken in small doses internally, its disagreeable odour and flavour being covered by mint water. In the latter form it acts partly by the local disinfection of the sputa, and partly by absorption into the blood. Brown discoloration of the urine indicates when the acid is being carried too far. Alcohol may be prescribed, and is sometimes required, in very large doses. Prof. Leyden mentions the Hungarian wines as of special value on account of their strength. Traube recommends acetate of lead, in doses of from half to one grain every two hours; and when the febrile symptoms have considerably abated, one to two grains of tannic acid every two hours. A few doses of quinine should be intercurrently ordered in quick succession. As a general rule, tonics and liberal diet are indicated. The symptom which demands special attention is the cough, as the putrid materials have to be eliminated by this means. Leyden only prescribes opium when there is

much disturbance of the rest: during the day none should be given, but various forms of expectorant remedies may be used. (*Medizinisch-chirurgische Rundschau*, Marz 1872.)

Treatment of Pneumonia by the Neutral Acetate of Lead.—Dr. Strohl, whilst admitting that pneumonia undergoes spontaneous cure in the greater number of cases, thinks that appropriate treatment should be adopted to aid the powers of nature. For many years he had recourse to the ordinary method of bleeding and the administration of tartar emetic, but since the year 1841 he has been in the habit of giving sugar of lead, which he considers to be the best of the internal remedies for this disease. It is preferable, he remarks, to tartar emetic, to digitalis, and to veratria, because its action is more certain, more prompt, and more free from inconveniences. Its action is incontestably superior in the pneumonia of old people. About five grains may be taken per diem in solution, in divided doses. M. Strohl has never observed the slightest indication of saturnine poisoning in the course of this treatment, and M. Leudet, who has also used it largely, makes the same observation. Far from producing constipation, it rather occasions diarrhœa. It can be administered at all ages. It does not interfere with any of the phenomena concomitant to the critical resolution, as expectoration, diaphoresis, &c. Under its action the pulse rapidly diminishes in frequency, the febrile symptoms and the temperature fall in the course of six days. The use of the lead may be intermitted as soon as the fever has abated and resolution has fairly set in. (Lucas-Championnère, *Journal de Médecine*, Février 1872.)

A Zootrophic Powder.—V. Polli, after dwelling on the importance of the presence of the various mineral constituents of the body in food, if the healthy nutrition of the tissues is to be maintained, recommends the following powder, as containing some of the most essential:—Phosphate of lime, 10 parts; tribasic phosphate of lime, 10 parts; phosphate of soda, 15 parts; carbonate of lime, 10 parts; sulphate of magnesia, 15 parts; chloride of sodium, 10 parts; bicarbonate of potash, 15 parts; oxide of iron, 10 parts; oxide of manganese, 2·5 parts; silicate of potash, 2·5 parts. The dose of this powder is 45 grains daily for children, or double this quantity for an adult. He recommends its use especially—1. In infants at the breast, who are suffering from dentition, or in nurses. 2. In children suffering from osteo-malachia, rachitis, scrofulosis, or chlorosis. 3. In pregnant women, and those suffering from puerperal cachexia. 4. In fractures, and cases of caries of the bones. 5. In tuberculosis, especially when there are vomicæ. 6. In anæmia after hæmorrhages, and in leucocythæmia. 7. In convalescence after long illness. (*Medizinisch-chirurgische Rundschau*, Feb. 1872.)

Notes and Queries.

CORRESPONDENCE.

Loss of Vision during Scarlet Fever.—Mr. Charles Orton, of Newcastle-under-Lyme, has written the following to Mr. H. Power, which he sends us with an appended comment:—"As you express a wish in the *Practitioner* of May 1871 to hear of any cases of loss of vision during an attack of scarlet fever, I take the liberty of bringing under your notice a case which occurred in my practice. The patient, a young, healthy man, was a wholesale clothier, having an establishment in three different towns. He contracted scarlet fever, which ran a regular course, followed, after indiscretion, by dropsy, which lasted some considerable time; face, hands, legs, body, and scrotum becoming swollen considerably; the albumen in the urine sadly too plentiful. He recovered well. There was no swelling left, not even in the eyelids or ankles, and there had been no trace of albumen for three or four days, when I was sent for in a hurry, and was met by the startling information that he had gone blind. I concluded at once that the albuminuria had returned, and there was œdema of some part of the eyes. However, as he had been vomiting most severely, the question arose whether there might not be rupture of some vessel and effusion of blood; but I could see nothing the matter with the eyes: the iris acted perfectly; there was no pain in the ball of the eye or behind, but excruciating pain in the temples and back of ears. After inquiry I learned that he had been working hard at his books, balancing and making out accounts for the most part by gaslight. I then concluded that the cause was some functional derangement of the nervous system connected with the eye, and would pass off, in how long I was at a loss to say. I ordered bromide of potassium and darkened the room. Feeling anxious, however, I called in my colleague, Dr. Arlidge, who also gave a favourable prognosis, and attended the case with me for three days, when the sight returned. We then gave strychnine and iron. Your interesting

article would have saved me much anxious thought. I also had a case of loss of speech after typhus, lasting fourteen days."

[It is interesting to observe that in both these cases, as in most of those recorded elsewhere, the attack of amaurosis supervened at a late period of the primary affection, and was not coincident with the development of the general anasarca, whilst it was in both cases associated with marked symptoms of centric disturbance—severe headache and starting in Dr. Lente's case; excruciating pain in the temples and vomiting, in Mr. Orton's—thus furnishing additional evidence in favour of Ebert's view, that an effusion takes place either into the cerebral ventricles or into the substance of the brain; for if the loss of vision were due to œdema of the optic nerve, or serous effusion beneath the retina, we should expect it to occur at least as soon as the general anasarca; and, on the other hand, judging from the phenomena presented by cases of Bright's disease and syphilis, we should not expect it to be accompanied by pain.

In the recently published work of Galezowski ("Traité des Maladies des Yeux," 1872), no notice is taken of such cases of sudden amaurosis as those described above, but reference is made to a treatise by M. Henri Roger, who, it appears, has observed albuminuric retinitis after scarlet fever. M. Galezowski, however, observes that, in company with Dr. Bartzer, he has examined the eyes of a considerable number of children affected with scarlet fever, without being able to distinguish any pathological condition.—H. P.]

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[1] Any of the foreign works may be procured on application to Messrs. Dulau, of Soho Square, W.C.; or Williams & Norgate, of Henrietta Street, Covent Garden, W.C. We have not lately received lists of new French books, and shall be much obliged to publishers who will forward them.

THE PRACTITIONER.

JUNE, 1872.

Original Communications.

ON THE ACTION OF QUININE ON THE COLOURLESS BLOOD-CORPUSCLES.

BY DR. GELTOWSKY.

(*From the Laboratory of the Brown Institution in London*).

In Band V. of the "Archiv für die gesammte Physiologie," 1871, and in "Die Pathologie und Therapie der Leukämie," Berlin, 1872, there are two articles on the influence of quinine on the colourless corpuscles of the blood. Both authors have found that quinine stops the movement of the colourless globules even when that substance is present only in one part to 4,000 parts of blood or of liquid. By this influence of quinine they endeavour to explain the cure of certain maladies under treatment by that substance. Desiring to make use of this means for studying inflammation of the connective tissue, I wished in the first place to verify the statements of these authors. With this purpose I began to compare the action of quinine on the colourless corpuscles with that of other substances on these corpuscles, in order to discover whether or not this effect belongs peculiarly to quinine. For this purpose I chose newt's blood as being that in which the movements of the colourless blood-corpuscles are most easily observable. The substances I employed for this study of comparative effects were sulphate of quinia, hydrochlorate of

quinia, methyl sulphate of strychnia, urea, and chloride of sodium. With a capillary pipette I took some drops of blood from the newt, which drops I placed upon the glass slide; then by means of another pipette I added to the blood one of the substances above mentioned. After the reagent had been mixed with the blood the cover-glass was put on; the preparation was then closed in the usual manner with oil. I commenced to work with comparatively strong solutions, viz. one part of quinine to 900 parts of fluid. The following table will illustrate this:—

	MALE NEWT.	FEM. NEWT.
Hydrochlorate of quinia 0·01 dissolved in 3·00 of water. One drop of this solution added to two drops of blood, which is 1 part of quinia to 900 of liquid, = 1 : 900.	Movements of colourless blood-globules at first scarcely perceptible, and soon after they ceased entirely.	Ditto.
[1] Urea in the same relative proportions, 1 : 900.	Movements in no way affected.	Ditto.
[2] Methyl sulphate of strychnia in the same relative proportions, 1 : 900.	Movements in no way affected.	Ditto.

3. I now wish to show, by the following experiments, that the effects of sulphate of quinia and hydrochlorate of quinia are in all respects similar:—

SULPHATE OF QUINIA.		HYDROCHLORATE OF QUINIA.	
[4] Sulphate of quinia 0·01 to 1·50 of water. One drop of this solution to one drop of blood of newt, *i.e.* 1 part of quinia to 300 parts of liquid, = 1 : 300.	Movements of blood-globules cease entirely.	[5] Hydrochlorate of quinia of the same strength as in case of sulphate of quinia. One drop of solution to one drop of blood of newt, *i.e.* 1 : 300.	Movements of blood-globules cease entirely.
[6] One drop of the same solution of the sulphate of quinia to two drops of newt's blood, *i.e.* 1 : 450.	No movement.	[7] One drop of the same solution of hydrochlorate of quinia to two drops of blood of newt, *i.e.* 1 : 450.	No movement.

Sulphate of Quinia.		Hydrochlorate of Quinia.	
[8] One drop of the same solution of sulphate of quinia to three drops of newt's blood, *i.e.* 1 : 600.	No movement.	[9] One drop of the same solution of hydrochlorate of quinia to three drops of newt's blood, *i.e.* 1 : 600.	No movement.
[10] Sulphate of quinia 0·01 to 4·50 of water. One drop of this solution to two drops of newt's blood, *i.e.* 1 : 1350.	Movements of blood-corpuscles not affected.	[11] Hydrochlorate of quinia 0·01 to 4·50 of water. One drop of this solution to two drops of newt's blood, *i.e.* 1 : 1350.	Movements of blood-corpuscles not affected.

In the same way I have compared the effects of quinine with chloride of sodium, as the following experiments show. In these investigations I chose the blood of a guinea-pig:—

[12] Chloride of quinia 0·01 to 10·00 of water. One drop of this solution to two drops of guinea-pig's blood, *i.e.* 1 : 3,000.	Movements of blood-corpuscles at first scarcely perceptible, and soon after they ceased entirely.
[13] The same solution of hydrochlorate of quinia. One drop to two drops of blood of male guinea-pig, *i.e.* 1 : 3,000.	After half an hour no movements.
[14] Chloride of sodium in the same proportion, *i.e.* 1 : 3,000.	Movements not affected.
[15] The same solution of chloride of sodium. One drop of solution to two drops of blood of male guinea-pig.	Movements in no way affected during two hours of observation.

The following experiments prove that this action belongs to quinine, and not to the water employed as a means of solution:—

[16] One drop of water added to three drops of newt's blood.	Affects in no way the movements of the colourless corpuscles during the space of two and a half hours of observation.
[17] One drop of water to two drops of newt's blood.	The movements of the blood-corpuscles remain unaffected during twenty hours of observation.
[18] One drop of water to one drop of newt's blood.	The movements of the blood-corpuscles not affected.

It follows, from this experiment, that quinine possesses the property of stopping the movements of the colourless corpuscles. These movements cease after a longer or shorter time, according to the strength of the solution of quinine employed, as we shall see further on. The globules commence to retract their prolongations, they lose their pale aspect, and become more or less coarsely granular. In this state they can still make movements to a limited extent; at least we see that they are still becoming oval or polyhedrical, and exhibit on their surface a few knob-like, more or less hyaline, prominences. As the globules became more granular the nuclei came into view as sharply outlined granular bodies; and finally the movements of the globules ceased entirely. Of course if the quinine has been employed in a strong solution (see experiments Nos. 8, 9, 10, 11, and 12), the different stages just described are not easily to be recognised, because the colourless globules assume their coarse granular aspect and the roundish shape in a very short time.

Having thus convinced myself of this special action of quinine on the blood-corpuscles, I made a series of experiments in order to define the exact quantity of quinine which would render the corpuscles incapable of movement. I commenced with the blood of the newt.

In order to measure the drops I made use of two capillary tubes, one for blood and another for the solution of quinine. With each of these I took one drop of water, dividing the space which the amount of water occupied into three equal parts, so as to know exactly the comparative quantity of blood and of the solution of quinine employed. These tubes, before being used, were always carefully washed and dried.

EXPERIMENTS.

[19] Hydrochlorate of quinia 0·01 dissolved in 1·50 grms. of water. One drop of this solution added to two drops of newt's blood, *i.e.* 1 part of quinine to 450 parts of liquid, = 1 : 450.	The movements of colourless blood-corpuscles ceased entirely.
[20] The same solution of quinia employed to the same quantity of blood as in foregoing experiment, = 1 : 450.	Result the same as in foregoing experiment.

[21] The same relative quantities of the same liquids again employed, = 1 : 450.	The movements ceased almost entirely, except that certain globules, before losing all vitality, formed the hyaline prominences before mentioned.
[22] Hydrochlorate of quinia 0·01 to 3·00 of water. One drop of this solution to one drop of blood of newt, = 1 : 600.	Movements ceased entirely.
[23] The same solution of quinia as in 22nd experiment. One drop of this solution to two drops of blood, *i.e.* 1 : 900.	After three hours, movements ceased entirely.
[24] Hydrochlorate of quinia 0·01 to 3·50 of water. One drop of this solution to two drops of blood, *i.e.* 1 : 1050.	Movements perfectly normal after three and a half hours' observation.
[25] The same solution of quinia, *i.e.* 0·01 to 3·50 of water. One drop of solution to two drops of blood, *i.e.* 1 : 1050.	After three and a half hours, movements of blood-corpuscles are normal.

I tried also to find whether there is any difference between male and female newts. (See table on next page.)

From these experiments it follows:—

a. That quinine arrests the movements of the colourless globules of the newt's blood if it is used in the proportion of one part to 800 or 900 parts.

b. That the globules of the female's blood resist longer the action of quinine.

c. That the globules of the blood of animals enfeebled by the loss of blood in previous experiments resist the action of quinine a shorter time than the globules of animals entirely fresh.

d. That the solution of quinine, whether it be in water or in serum, acts with the same force. As regards the solution of quinine in serum, it is remarkable that the movement of the colourless globules ceases in a much shorter time if the serum is not perfectly fresh, although the reaction be neither more nor less alkaline than that of normal serum. I found, for instance, that, in a preparation which contained two drops rabbit's serum kept for twenty-four hours after the animal died; and three drops of newt's blood, after half an hour the movement of the colourless globules had entirely ceased (exp. 46).

Solution.	Number of Drops.	Male Newt.	Female Newt.	Remarks.
[26] Hydrochlorate of quinia 0·01 to 3·00 of rabbit's serum, freshly prepared. (A fourth part of the quinine was not dissolved.)	1 of solutn. 1 of blood. *i.e.* 1 : 800.	After twenty minutes there were no movements.	[27] After three hours, movements of blood-globules are very feeble.	The same solution and the same newts were used in these experiments on the same day.
[28] The same.	1 : 800.	The same.	[29] The same.	
[30] Hydrochlorate of quinia 0·01 to 3·00 of rabbit's serum, already two days prepared.	1 of solutn. 2 of blood. 1 : 900.	After one hour the movements of globules ceased entirely.	[31] Movements ceased after two hours.	Newts fresh. Both experiments made at the same time.
[32] The same solution of quinia, but in water, 0·01 – 3·00.	1 of solutn. 2 of blood. 1 : 900.	After half an hour the globules moved feebly; after an hour and three quarters, movement ceased entirely.	[33] After an hour and three quarters, the movements were feeble. Movements ceased after three hours.	The newts were entirely fresh, *i.e.* had never been employed.
[34] Hydrochlorate of quinia 0·01 to 3·00 of water.	1 of solutn. 2 of blood. 1 : 900.	After three hours, movements became feeble, and soon after ceased.	[35] After three hours, movements became feeble, and soon after ceased.	The male fresh, the female enfeebled by several bleedings.
[36] Hydrochlorate of quinia 00·1 to 3·00 of water.	1 of solutn. 2 of blood. 1 : 900.	The movements ceased entirely after a very short time.	[37] The same result as in male.	The male was fresh, the female had been employed before.
[38] Hydrochlorate of quinia 00·1 to 3·50 of water.	1 of solutn. 2 of blood. 1 : 1050.	After four hours and a half, the movements were completely active.	[39] After four hours and a half, movements feeble.	
[40] Hydrochlorate of quinia 00·1 to 3·00 of water.	1 of solutn. 3 of blood. 1 : 1200.	After two hours and a half, all the cells were motionless.	[41] After four hours and a half, movements of cells were normal.	Newts the same size, and fresh.
[42] Hydrochlorate of quinia 0·01 to 4·50 of water.	1 of solutn. 2 of blood. 1 : 1350.	After four hours, the movements were active; after twenty-four hours, movements still existed.	[43] Results same as in the male.	Fresh newts.
[44] Hydrochlorate of quinia 0·01 to 3·50 of water.	1 of solutn. 3 of blood. 1 : 1350.	After twenty-four hours, movements were scarcely perceptible.	[45] After twenty-four hours, movements were normal.	Fresh newts.

In the same way as with newt's blood, I studied also the blood of guinea-pigs and human blood, so as to know the exact quantity of quinine which is necessary to stop the movements of the colourless corpuscles.

EXPERIMENTS ON THE BLOOD OF THE GUINEA-PIG.

Solution.	Number of Drops.	Results.
[47] Hydrochlorate of quinia 0·01 to 10·00 of water.	1 of solution. 2 of blood. 1 : 3,000.	No movements.
[48] Hydrochlorate of quinia 0·01 to 9·00 of water.	1 of solution. 3 of blood. 1 : 3,600.	Movements existed, but not very active, depending only on the process of change when the globules passed from round into oval or polyhedrical forms.
[49] Hydrochlorate of quinia 0·01 to 10·00 of water.	1 of solution. 3 of blood. 1 : 4,000.	Movements very active—six globules in the field of vision of microscope, and all in motion. Three globules also in other parts of field were in movement; but, after half an hour, movements became feeble, incident only to the changing of form already spoken of in experiment 48. During four hours' observation, these movements existed.
[50] Hydrochlorate of quinia 0·01 to 10·00 of water.	1 of solution. 3 of blood. 1 : 4,000.	During four hours of observation, movements existed, but quite feeble.

The drops of the liquids employed were estimated by weight in the following way:—Two capillary pipettes, quite dry, were weighed, after which they were filled with sufficient water to render the weight of each of the pipettes greater by 0·005 m.g. than before. I then drew into the tubes still more water in order to increase again the weight of each by 0·005 m.g., and yet again I drew in the same quantity of water, *i.e.* 0·005 m.g. The three points of division corresponding to these three respective quantities were marked on the tubes, so that each division contained 0·005 m.g. of water. In all these experiments one drop is equal to 0·005 m.g. of weight.

These pipettes, before being used, were well washed and

dried; the drops of blood and the solution of quinine were well mingled the one with the other, to obtain a uniform mixture of the two. In comparative experiments the heating of the microscopical preparations up to 39° C. was conducted on both microscopes at the same time, the temperatures being always maintained equal.

COMPARATIVE EXPERIMENTS ON THE BLOOD OF GUINEA-PIG, ADULT AND YOUNG.

Solution.	Number of Drops.	Guinea-pig (Adult).	Guinea-pig (Young).
[51] Hydrochlorate of quinia 0·01 to 10·00 of water.	1 of solutn. 3 of blood. 1 : 4,000.	Without heating, during one hour movements very active. After three hours of heating, three globules in the field of vision, all (3−) without movements. 2 gl. in field = 1 + 1 − * 1 „ = 1 + After four hours, movements scarcely perceptible. 6 gl. in field = 2 + 4 −	[52] Without heating, movements very active during one hour. With heating, after three hours— 2 gl. in field = 2 − * 1 „ „ = 1 + 2 „ „ = 1 + 1 − 5 „ „ = 4 + 1 − 1 „ „ = 1 − 3 „ „ = 1 + 2 − 1 „ „ = 1 + 2 „ „ = 2 − After four hours, movements scarcely perceptible.
[53] Hydrochlorate of quinia 0·01 to 10·00 of water.	1 of solutn. 3 of blood. 1 : 4,000.	After heating two and a half hours— 1 gl. in field = 1 + 1 „ „ = 1 − 2 „ „ = 2 + 2 „ „ = 1 + 1 − 4 „ „ = 2 + 2 − After three and a half hours, movements already scarcely perceptible.	[54] After heating two and a half hours— 1 gl. in field = 1 − * 1 „ „ = 1 + 1 „ „ = 1 + 1 „ „ = 1 + 1 „ „ = 1 + 1 „ „ = 1 + 1 „ „ = 1 + After three and a half hours, movements already scarcely perceptible.
[55] Hydrochlorate of quinia 0·01 to 10·00 of water.	1 of solutn. 2 of blood. 1 : 3,000.	After half an hour of heating, no movements.	[56] After half an hour of heating, no movements.

* + Motion, − motionless.

* + Motion, − motionless.

COMPARATIVE EXPERIMENTS ON THE BLOOD OF MALE AND FEMALE OF GUINEA-PIG.

N.B. Male and Female of Guinea-pig always the same size.

OLUTION.	NUMBER OF DROPS.	MALE GUINEA-PIG.	FEMALE GUINEA-PIG.
ydrochlorate of 0·01 to 5·00 of	1 of solutn. 3 of blood. 1 : 2,000.	No movements.	[58] No movements.
ydrochlorate of 0·01 to 5·00 of	1 of solutn. 3 of blood. 1 : 2,000.	No movements.	[60] No movements.
ydrochlorate of 0·01 to 10·00 er.	1 of solutn. 2 of blood. 1 : 3,000.	No movements.	[62] No movements.
ydrochlorate of 0·01 to 10·00 er.	1 of solutn. 2 of blood. 1 : 3,000.	After three-quarters of an hour, no movements.	[64] After three-quarters of an hour heating— 1 gl. in field = 1 +* 8 ,, ,, = 8 + 2 ,, ,, = 2 + 14 ,, ,, = 14 + 18 ,, ,, = 18 + After one hour and a quarter heating— 4 gl. in field = 4 —* 2 ,, ,, = 2 — 8 ,, ,, = 8 — 30 ,, ,, = 30 — 17 ,, ,, = 7 + 10 —
ydrochlorate of 0·01 to 10·00 of	1 of solutn. 2 of blood. 1 : 3,000.	After a quarter of an hour heating, movements feeble, and ceased.	[66] After twenty-five minutes of heating— 23 gl. in field = 23 + 24 ,, ,, = 24 + Movements were active.
ydrochlorate of 0·01 to 10·00 ter.	1 of solutn. 2 of blood. 1 : 3,000.	No movements even after heating.	[68] No movements.

* + Motion.
— Motionless.

COMPARATIVE EXPERIMENTS ON THE BLOOD OF MALE AND FEMALE OF GUINEA-PIG—*continued.*

Solution.	Number of Drops.	Male Guinea-pig.	Female Guinea-pig.
[69] Hydrochlorate of quinia 0·01 to 10·00 of water.	1 of solutn 2½ of blood. 1 : 3,500.	After three quarters of an hour heating— 16 gl. in field = 9 + 7 − * 7 ,, ,, = 6 + 1 − After heating one hour and a quarter— 11 gl. in field = 2 + 9 − 12 ,, ,, = 12 + After heating two hours and a quarter— 13 gl. in field = 5 + 8 − 1 ,, ,, = 1 + 14 ,, ,, = 8 + 6 − 8 ,, ,, = 2 + 6 − After heating three hours and a quarter— 10 gl. in field = 3 + 7 − 3 ,, ,, = 3 − 7 ,, ,, = 3 + 4 −	[70] After heating one hour— 3 gl. in field = 1 + 2 − * 3 ,, ,, = 3 + After heating one hour and a half— 12 gl. in field = 7 + 5 − 7 ,, ,, = 3 + 4 − 2 ,, ,, = 1 + 1 − After heating two hours and a half— 2 gl. in field = 1 + 1 − 4 ,, ,, = 4 − 3 ,, ,, = 3 − 3 ,, ,, = 2 + 1 − 1 ,, ,, = 1 + After heating three hours and a half— 7 gl. in field = 7 + 2 ,, ,, = 1 + 1 − 2 ,, ,, = 2 + 5 ,, ,, = 5 + 6 ,, ,, = 6 +
[71] Hydrochlorate of quinia 0·01 to 10·00 of water.	1 of solutn. 2 of blood. 1 : 3,000.	Heating: no movements— 3 gl. in field = 3 − 2 ,, ,, = 2 + 1 ,, ,, = 1 + On all the other fields of vision I could not find the cells in motion.	[72] Heating: no movements.
[73] Hydrochlorate of quinia 0 01 to 10·00 of water.	1 of solutn 3 of blood.	After heating four hours, movements still evident, although feeble.	[74] The same as in the case of male.

* + Motion, − motionless

* + Motion, − motionless

These experiments prove that the movements of the colourless globules of the blood of the guinea-pig cease if the quinine is added to the blood in the proportion of one part of quinine to 3,000 of liquid (or 2,000 of blood). But concerning the power of resistance to the action of quinine which the blood-globules of the female possess (as well as those of animals not yet fully grown), when compared with the behaviour of the blood-cor-

:les of the developed male under the same circumstances, :e experiments do not throw sufficient light.

EXPERIMENTS WITH BLOOD OF A MAN.

SOLUTION.	NUMBER OF DROPS.	RESULTS.
ydrochlorate of 0·01 to 10·00 er.†	1 of solution. 3 of blood. 1 : 4,000.	A quarter of an hour after making the preparation *without* heating— 3 cells in field of vision = 3 - * 1 ,, ,, = 1 + One hour after making the preparation and a quarter of an hour heating— 2 cells in field of vision = 2 + One hour and a half after making the preparation, and three-quarters of an hour heating— 1 cell in field of vision = 1 + Two hours after making the preparation, and one hour and a quarter heating— 1 cell in field of vision = 1 + 2 ,, ,, = 2 + 1 ,, ,, = 1 + Movements very active.
ydrochlorate of 0·01 to 10·00 ter.†	1 of solution. 2 of blood. 1 : 3,000.	After half an hour without heating— 4 cells in field of vision = 3 + 1 - 2 ,, ,, = 1 + 1 - 1 ,, ,, = 1 + Three-quarters of an hour after making preparation, and a quarter of an hour heating— 2 cells in field of vision = 1 + 1 - 1 ,, ,, = 1 + 2 ,, ,, = 2 + 1 ,, ,, = 1 + One hour and a quarter after making preparation, and three-quarters of an hour heating— 1 cell in field of vision = 1 - 2 ,, ,, = 2 - 1 ,, ,, = 1 + 1 ,, ,, = 1 + Two hours after making preparation and one hour and a half heating— 11 cells in field of vision = 11 + 2 ,, ,, = 2 + 2 ,, ,, = 2 + 5 ,, ,, = 3 + 2 - Three hours after making preparation, and two hours and a half heating— 5 cells in field of vision = 2 + 3 - 3 ,, ,, = 2 + 1 - Movements very active.
ee note at end ible.		* + Motion, - motionless.

EXPERIMENTS WITH BLOOD OF A MAN—*continued.*

Solution.	Number of Drops.	Results.
[77] Hydrochlorate of quinia 0·01 to 10·00 of water.	1 of solution. 2 of blood. 1 : 3,000.	After three-quarters of an hour without heating— 2 cells in field of vision = 2+* 2 ,, ,, = 2+ 1 ,, ,, = 1− 11 ,, ,, = 10+1− After one hour of heating − 11 cells in field of vision = 11+ 2 ,, ,, = 2+ 4 ,, ,, = 4+ After one hour and a half heating— 1 cell in field of vision = 1+ 3 ,, ,, = 2+1− 8 ,, ,, = 8+ 2 ,, ,, = 2+ 2 ,, ,, = 2+ Movements very active.
[78] Hydrochlorate of quinia 0·01 to 7·00 of water.†	1 of solution. 3 of blood. 1 : 2,800.	No movements. Heating did not excite movements. All the cells were round and granulated.
[79] Hydrochlorate of quinia 0·01 to 7·00 of water.	1 of solution. 3 of blood. 1 : 2,800.	No movements. Heating did not excite any movements.
[80] Hydrochlorate of quinia 0·01 to 7·00 of water.†	1 of solution. 2 of blood. 1 : 2,100.	No movements.

* + Motion, − motionless.

† For the experiments 75, 76, 78, and 80, blood was taken from the same man; and for the experiments 77 and 79 from another man.

Quinine stops the movements of colourless blood-corpuscles of man if it is in proportion of one part of quinine to 2,800 of liquid (or to 2,100 of blood).

As regards the action of quinine on colourless blood-corpuscles when removed from the body—that is, the action of quinine on blood-corpuscles under the microscope—it is evident that the assertions of Kerner have only a relative value. He has made the experiments only with blood of cats, and the conclusion deduced from these experiments can be valuable only for those animals. But to generalise this conclusion as regards the relative quantity of the reagent necessary to stop the movements for the whole animal kingdom would not answer the real facts. Our experiments, for instance, show that 1 : 4,000

blood has no action at all, neither in guinea-pig's nor in man's blood; that in the relation 1:4,000 liquid, or even in 1:3,500 liquid, the movements of the colourless globules are as lively as in the normal state.

After knowing that quinine possesses a special action on colourless globules when removed from the body, I tried to see whether and under what conditions it is possible to produce a similar action on the globules when quinine is injected into the body of the animal. For that purpose I made the following experiments:—

81. I selected a frog which weighed 30·175 grms. Twenty-two divisions of Provaz's syringe were filled with a solution of sulphate of quinia (containing 0·1 of quinia to 15·00 of water and some drops of æc. sulph.), which solution was then injected into the vein of the frog. A preparation of blood, prepared soon after the injection, did not exhibit any alteration, as regards the movement of the colourless globules, even when the observation under the microscope had been continued for an indefinite time.

A quarter of an hour after the first injection, the same quantity of the same solution was injected beneath the skin of the same frog. Twenty minutes after that, a quantity of the same solution, equivalent to 40 divisions of Provaz's syringe, was injected beneath the skin, always of the same animal. The movement of the globules remained always unaffected. Still, an hour later, again the quantity contained in forty divisions of Provaz's syringe was injected beneath the skin of the same frog, as before. The frog died, but the globules continued their normal movements.

82. Again, the quantity contained in twenty-two divisions of Provaz's syringe of a solution of hydrochlorate of quinia (0·1 of quinia to 15·00 grammes of water) was injected into the vein of the frog. The movements of the globules remained always active and normal.

83. A male guinea-pig, which weighed 658 grammes, was chosen. Supposing, then, that the twelfth part of his weight expressed the weight of the whole amount of its blood, the quantity of blood will be equal to 658·12 = 55 grammes. After the preceding experiments it will be necessary to employ

the relative 1·2000, so as to stop the movements; therefore, 1·2000 = x : 55,—that will be equal to 0·028 m.gr., the quantity of quinia which ought to stop the movements of the colourless corpuscles. Accordingly, this quantity of hydrochlorate of quinia was injected into the jugular vein of this guinea-pig. The animal became completely narcotised, but the movements of the corpuscles (in blood which was taken from the cut ear at periods of ten, thirty, sixty, and ninety minutes after the injection) continued perfectly normal.

84. The guinea-pig weighed 661· grammes. Now, supposing in this case that the weight of the blood was equal to the eighth part of the weight of the body, we shall have 661·8 = 82 gr. of blood. After the preceding calculation (1·2000), it would be necessary to take 0·041 m.gr. of hydr. of quinia to obtain the special action of the drug on the globules. This quantity was injected into the jugular vein of the guinea-pig. The animal was narcotised, but the movements of the globules were perfectly normal after five, twenty, sixty minutes from the time of injection.

85. The guinea-pig weighed 737 grammes. The quantity of blood would be 737·8 = 92 grammes. 0·07 m.gr. of hydrochlorate of quinia (which quantity in relation to the quantity of blood is as 1:1314) was injected into the veins of this animal. After a few minutes the animal died, but the movements of globules continued normal.

86. The guinea-pig weighed 530 grammes; the blood 530·8 = 66 grammes. 0·047 m.gr. of hydrochlorate of quinia was injected into the jugular vein. (Relation of the quantity of quinine to the quantity of blood is as 1·1400.) The animal died in a few minutes, but the movements of the cells were completely normal.

87. The guinea-pig weighed 600 grammes. Beneath the skin of this animal, during four days, a quantity 0·01 = gr. of hydrochlorate of quinia was injected. On the fourth day the movements of the globules remained completely normal.

We see, therefore, that although quinine possesses the power to stop the movements of the colourless globules, yet this action perhaps can only be obtained on the stage of the microscope.

On injecting into the blood doses which cause the death of the animals, quinine has no influence on the colourless blood-corpuscles. Even if the quinine had had the same influence on the colourless corpuscles of the blood in the interior of the organism as under the microscope, it would have been impossible to explain, by the action of quinine on the colourless corpuscles, the cure of certain maladies under treatment by this drug, because, according to the preceding experiments, it is necessary to employ one part of quinine to 2,800 parts of the blood of man. Hence, in the case of a man in whom the quantity of blood would amount to about 15 to 20 pounds, it would be necessary, in order to obtain the special effect, to take almost one drachm of quinine, which would be impossible.

I am therefore not able to affirm that quinine has an influence on the quantity of colourless blood-corpuscles in the organism; and I wish only to say that in leukæmia, under treatment by that drug, the decrease of these blood-corpuscles must be explained in some other way, and not by simple direct action of quinine on colourless blood-corpuscles; for instance, by direct action on the nervous system and indirect action on the glands, or other organs whose function it may be to give rise to or to destroy the colourless blood-corpuscles. But that would be a pure supposition, and not a result proved by experiment.

[In the above very interesting paper, Dr. Geltowsky has omitted to mention the real discoverer of the effects of quinine on the blood-corpuscles, viz. Dr. Binz. He does not appear to have read the very interesting papers of the latter author published in 1867 and 1868 (in *Virchow's Archiv* and in the *Deutsche Klinik*), nor the continuation of those researches (*Weitere Studien üb. Chinin.: Berlin. Klin. Wochensch.* Nov. 1871). Kerner's researches are chiefly interesting as confirming those of Binz. The independent confirmation, by Dr. Geltowsky, of the effect of quinine on the corpuscles is very interesting: as regards the possibility of the same effect being employed therapeutically, we believe he will find some of his objections answered by anticipation in the papers to which we have alluded.—ED. PRACT.]

ON THE ANTISEPTIC TREATMENT OF SMALL-POX.

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THE progress of preventive medicine in these days has been such that there are now very few medical practitioners who, when called to attend upon a case of infectious disease, do not recognise that a double duty falls upon them, not only to treat the individual patient, but to prevent the spread of the malady to the community. Disinfection goes hand in hand with therapeutics. The object of the former is to destroy or render inert the agent which brings about the disease: if this be capable of accomplishment outside the economy, it is surely legitimate to attempt the same internally whilst the *materies morbi* is working its deleterious effects upon the system. Upon such a consideration is the antiseptic method of treatment founded, and such a large amount of evidence has been recorded as to establish at least a *primâ facie* case in its favour. Erroneous notions have, however, been promulgated as to the legitimate modes of putting this treatment in force. As it would be absurd to denominate the administration in rheumatism of any drug having any alkaline reaction the alkaline method of treatment, so it would be improper to call the exhibition of a remedy having antiseptic qualities in infectious disease the antiseptic treatment.

Taking the special disease, small-pox, we shall first inquire concerning the principles which should guide us. The proposition for experience to establish or to negative is, that whereas the poison of small-pox can be destroyed or neutralised, whilst it is external to the body, by agents known as antiseptics, it can

be so affected whilst within the body as to modify the disease of which it is the cause. The first question which occurs is, What is the nature of this poison or *materies morbi?* That it has physical attributes no one at this day doubts. There is no evidence whatever to show that it is propagated in any other manner than by the transmission of the contagium from the subjects upon whom it has manifested its effects to others who have not previously succumbed to its influence. Its remote origin may be set aside as not of practical moment as regards the present inquiry, and its spontaneous generation in any instance has never been substantiated. Any other mode of propagation than direct transmission is, as Niemeyer says, "sovereignly improbable." It is given off from the diseased person by the affected portions of the skin as well as by the pulmonary and cuticular emanations, before the disease has become manifest, when alone the initiatory fever has begun.[1] The amount of the poison capable of inducing the disease is of extreme minuteness: it can be wafted for long distances by currents of air, it can be conveyed by the slightest contact. During the present epidemic I saw a severe case in which the subject had never moved from her own house; there was no possibility of intermediate personal contagion, but the disease existed in the neighbourhood: and I have known an instance in which the disease was conveyed by the grasp of the hand of a lady who had lately come from visiting her sick son. Common experience, which has shown the subtle influence to be a material poison, has contributed to found arguments against the view that it is a mere organic principle. Inoculation has demonstrated that it is not a vaporous exhalation; if it were a soluble liquid, we should expect it to follow certain laws as to dosage; if it were a mere alkaloid, like the hypothetic sepsin, wherefore should it possess a term of efficiency and be rendered inert by a degree of heat which would in no way interfere with its physico-chemical properties? A common method of disinfection is subjection to heat, but it should be recollected that this would be utterly futile if the contagium were a mere organic poison; we have no right to conclude that such a poison would be changed any more

1 Cf. Marson, in Reynolds' "System of Medicine," vol. i. p. 242; Tanner's "Practice of Medicine," vol. i. p. 278.

than the other organic material subjected to the same influence. Happily, modern investigation has been able to point certain precise conclusions as to the nature of the mysterious *materies morbi*. The diffusion-experiments of Chauveau have supplied irrefragable proof that the active agent in the minute portion of contagium is a solid, insoluble in water and indiffusible. Unfortunately, analysis with the highest aids fails to determine the physical characters of this minute solid particle; but the facts of its behaviour as a body that possesses a term of energy and vitality, and especially its power of reproduction, point strongly to the conclusion that it has the properties of living matter. Indeed, to this conclusion we must come, unless we admit an utterly inexplicable process of catalysis—a form of expression which, by the advance of science, is gradually becoming relegated to the position of the Vital Spirits and the Humors of our ancestors. It is upon the supposition that the contagium of small-pox is a living particle that the antiseptic mode of treatment is based. The arguments which establish a parallel between disease-action and putrefaction or fermentation need not be entered upon here.[1] Suffice it to say that a large amount of evidence tends to the belief that all such forms of organic disruption are due to the operation of minute living particles, and when the vitality of these particles is quenched the processes can no longer be continued. In the operation of antiseptics it is these living particles, the agents of organic disruption, that are attacked and their life destroyed. Whether the germs of disease are *ab initio* vegetable or animal is a matter of obscurity. In fermentations we have great reason to believe that it is the function of *vegetable* forms of life alone to accomplish the decomposition of organic matters, though the appearance of animal forms is an almost constant concomitant. It seems reasonable to suppose that a general unity obtains, although the agents of destruction may be merged with and indistinguishable from the animal soil in which they live and multiply.

The germ, or zymogen, of small-pox having entered within the body with the inspired air, or through any breach of skin-surface, there is a period of twelve days during which it

[1] Cf. The Antiseptic System, chaps. xvi.—xviii.

manifests no obvious effects whatever. It is certain, however, that during this period of apparent latency its multiplication must have taken place within the system, for when its peripheral effects are first observed these are manifest simultaneously in many points over a wide extent of the superficies of the body. The multiplication of the zymogens differs in different individuals, and does not depend upon any inherent qualities of the germ itself, for a person infected from a mild case, attended with only a very few pustules, may have the disease in the most confluent form, and *vice versâ*. The proliferation may take place in the blood, or in the tissues, or in both. The synchronous manifestation of the local signs would point to the probability that its multiplication to a certain extent took place in the circulating fluid. There is uncertain testimony as to the poison being itself communicable by the blood: inoculation has often been attended with negative results. MM. Coze and Feltz, on the other hand, assert that they discover bacteria in the blood of variolous patients, and that rabbits inoculated with the blood develop similar bacteria, become themselves possessed of powers of infection, and die.[1] The fact, however, remains that in the human subject the multiplication of the poison in the blood, if it occurs therein during the twelve days' incubation, is unattended with consequences sufficiently grave to disturb the balance of normal health; but it is in the tissues that the most considerable increase of the poison takes place, and it is not till these are involved that the disease assumes any serious signs. The effects seem first to be manifest upon the organic nervous system—it appears that the vasomotor nerves are enfeebled or paralysed, giving rise to conditions of hyperæmia, or, when destruction of the vascular walls has ensued, to hæmorrhage or ecchymosis. It would appear that the zymogens are arrested at various spots in the capillary plexus of the skin, and there undergo their most active changes, inducing inflammation, exudation, destruction of surrounding tissue, and suppuration, and becoming themselves enormously increased and multiplied. The phenomena of the secondary fever we can scarcely doubt to be due to the resorption of septic material from the purulent

[1] "Recherches expérimentales sur la Présence des Infusoires et l'Etat du Sang dans les Maladies infectieuses." Strasbourg, 1864.

product. The important consideration is that it is *in the tissues* that the morbid activity of the poison is chiefly manifest; and to employ any agent which will not efficiently permeate the tissues, and thus reach the *materies morbi*, will be futile.

We will now consider the practical duties of one who would fairly put in force the Antiseptic Treatment of a Case of Small-pox.

I. EXTERNAL DISINFECTION.—It is to be recollected that at the time when any morbid symptoms become manifest, the poison of the disease can be exhaled from the system and can infect other persons. It is therefore a first duty that all superfluous, especially woollen, materials which can arrest and retain the poison shall be removed from the sick-chamber. It is the air into which the poison is exhaled that is now the chief medium of transmission; therefore our most obvious duty is to disinfect the air. It has been declared that all methods of air-disinfection are necessarily futile—that it cannot be charged sufficiently with any antiseptic agent to exert any appreciable effect on the germs of disease. Seeing, however, that common air supplied in moderate quantity with certain antiseptic agents will kill animalculæ, and will arrest the manifestation of fungi, and looking to the evidence attesting the good practical effect of such attempted disinfection in various epidemics, I must believe that the minute zymogens are capable of destruction even whilst floating in the air. The most valuable agents to employ for disinfecting the air of the sick-chamber are sulphurous acid and carbolic acid.

Sulphurous Acid is easily generated by burning sulphur upon an iron plate, which for purposes of safety should be placed in the middle of a vessel containing water. The only objection is the pungency of the evolved gas; but Dr. Hjaltelin, who especially recommends this method, says that his small-pox patients soon became accustomed to it, and even experienced the good effects of it upon themselves.[1]

Carbolic Acid.—For my own part I prefer this, because I believe it to be, of all agents we are acquainted with, the most powerful as a disinfectant of the air. My experiments showed that the germs which under ordinary circumstances develop into

[1] British Medical Journal, p. 519, Nov. 4, 1871.

fungi are entirely killed by a small proportion of carbolic acid present in the air supplied to the soil; and of all the volatile agents I employed, this was the most efficient and most permanent.[1] I always advise first that the floor of the sick-chamber be washed with water in which carbolic acid has been dissolved, and that some absorbent material moistened with the liquid acid, whence it may readily evaporate, be continuously exposed. The vaporiser of Messrs. Savory and Moore can be used with great advantage to diffuse the vapour in a larger proportion, but this must be employed only at intervals, or the fumes will become too powerful. The same firm have produced at my request an instrument which provides a sufficient and constant vaporisation from an absorbent surface without any trouble or inconvenience.

II. INTERNAL DISINFECTION.—The object of this is to disinfect the living body of the sufferer, to treat the disease by acting upon its cause, and to prevent the evolution from the body of active zymogens capable of infecting other persons. For this purpose the agents employed should possess two kinds of qualities—they should be capable of antiseptic action directly upon the zymogens which are contiguous to the mucous surface, and they should be readily absorbed and diffused throughout the system without losing their antiseptic properties. The necessity of attaining the former of these objects is shown not only by the fact that, even before the disease is manifest, infecting molecules are eliminated, but by our knowledge that the multiplication of the poison takes place at many points of the mucous surfaces, as it does within the skin. Disinfection of the air-passages is attained by the means just described. Dr. Hjaltelin employed in addition sulphurous acid internally, diluted in the proportion of a drachm of the ordinary acid with an ounce of pure water, and administered every third hour. Dr. A. W. Foot, in addition to the diluted acid used as a drink, employed gargles of the same agent, sprayed the undiluted acid over nares and pharynx or used atomised solutions of tannin, carbolic acid, and sulphurous acid for the same purpose, caused the body to be washed with a solution of the acid, and sprinkled it about the bed and bed-clothes. The use of many of these plans is attended

[1] The Antiseptic System, p. 104.

with comfort to the patient as well as advantage to the attendants; but as a general rule I am content with allowing the patient to breathe an atmosphere rendered antiseptic, without employing any of the other means. The most important point that we should endeavour to attain is to antisept the tissues of the living body. Is this *primâ facie* impossible? No, for we have positive evidence that we can administer to a living animal an antiseptic substance which shall permeate all its tissues and entirely prevent post-mortem decomposition. The structures of an animal so influenced will dry up, but will undergo no putrefaction whatever. It is undeniable, however, that great difficulties stand in the way; the chief, that when we are first called to see a case of small-pox, a great portion of the mischief is already wrought. The zymogens have done their silent work; in some cases the petechiæ and ecchymoses show that such a destruction is already accomplished, that all means are hopeless. I have had evidence, however, that a petechial case, if it comes under care during the initiatory fever, is not necessarily fatal. One case, petechial and confluent, which presented the most alarming symptoms, completely recovered in my hands, under the antiseptic plan of treatment, in twenty-one days. The agents which have been recommended for internal administration are—

1. *Sulphurous Acid.*—This, as has been before observed, is a most efficient direct antiseptic, and it has been employed with apparently much advantage by many observers, especially Dr. Hjaltelin; but I think there are great doubts as to its efficacy as an antiseptic upon the tissues. I know of no evidence whatever in favour of the view that it can circulate as a free acid in the blood, while there are abundant probabilities that when absorbed into the blood it is neutralised by the alkaline constituents; in such case it would only reach the tissues in the form of an alkaline sulphite, and that in very small proportion.

2. *Carbolic Acid.*—The evidence is very conflicting as to the efficacy of this agent, internally administered, in small-pox, or indeed any other zymotic disease. It is to be recollected that it is administered with difficulty on account of its nauseousness, and it has a powerful toxic action. To exercise after its absorption any real antiseptic effect, it must be given in large quantities; in my own opinion, a dose that would be efficient as an antiseptic

would be highly dangerous; moreover, the character of the symptoms which it induces, especially the cerebral plethora, renders great caution necessary with reference to its administration in small-pox, and it tends not to abide in the system, but be rapidly excreted. According to my view, those who employ carbolic acid as an internal remedy in the usual doses do not really put in force the antiseptic treatment.

3. *The Alkaline Sulphites*, introduced by Polli in 1857, have these characteristics: They are readily absorbed; they circulate unchanged in the blood; they permeate the tissues, so that they can be recognised in and recovered from them as sulphites, a portion only being excreted oxidised as sulphates; they tend to accumulate in the tissues, but yet exert no deleterious action; and they are powerful antiseptics. I believe them to be very valuable agents for internal administration in small-pox. I employ sulphite of sodium in 20 to 30-grain doses dissolved in water, repeated every third or fourth hour.

4. *The Alkaline Sulpho-carbolates.*—According to my views, the action of these salts is as follows: They are readily absorbed, and, like the sulphites, easily permeate the tissues; they are not direct antiseptics like the sulphites, but, becoming decomposed, they liberate free carbolic acid, which exercises its antiseptic action. The antiseptic effect is evidenced upon the tissues and upon the urine, which resist putrefaction. I am accustomed in small-pox to administer 20 to 30 grains of the sulpho-carbolate of sodium every third or fourth hour. Dr. A. W. Foot has lately strongly corroborated my own views as to the efficacy of these agents internally administered in cases of small-pox.[1] I can only say that I have seen recovery take place in cases which appeared absolutely hopeless. As to the comparative value of the sulphites and the sulpho-carbolates, I think there is room for doubt. I have feared, in cases which have manifested cerebral symptoms, to administer the latter, in case the liberated carbolic acid might aggravate any tendency to encephalic hyperæmia: in such cases I have preferred the sulphites. I have never seen, however, graver symptoms than transient vertigo and headache follow the administration of the sulpho-carbolates in any case.

[1] Dublin Journal of Medical Science, March 1872.

III. TREATMENT OF THE PUSTULES.—This is a most important branch of the antiseptic plan. The application of an efficient antiseptic to the pustules on the surface of the skin fulfils two important indications—it tends to disinfect the laboratories of the poison, and thus to prevent the diffusion of the disease, and to arrest the process of suppuration to which are due the serious phenomena of the secondary fever. I have never seen secondary fever in any case in which the pustules have been treated in the manner I shall presently describe. What is called the ectrotic plan of treatment, which had for its object to make the pustules abort by local applications, has long been put in force, especially in France. For these purposes many materials have been employed—mercurial plasters, especially the "emplâtre de Vigo," solutions of corrosive sublimate, tincture of iodine, nitrate of silver, &c. In many cases it was stated that this method of treatment was followed by much success. These substances all have antiseptic qualities; no agent is more efficient in arresting fermentation than corrosive sublimate, and, according to Liebig, a trace only of oxide of mercury suffices to accomplish this arrest. The occurrence of ptyalism, however, taught caution in the use of mercurial preparations. Subsequently, collodion and other agents, which operated merely by excluding air, were employed, but extended experience showed that oftentimes more harm than good arose on account of the pent-up discharges. M. Lemaire, more recently, used liquefied carbolic acid as an application to the pustules, and he found that they became completely desiccated and shrunken, whilst others on the same patient, left untouched, went through their ordinary course, and were voluminous and filled with pus. I have been able completely to corroborate M. Lemaire's observation. I apply the acid, liquefied by means of alcohol, by a camel's-hair brush to the surface of the vesicles as soon as the contents commence to appear puriform, taking care not to touch the sound skin. The application is attended by no pain. I have allowed the attendants also to brush over the pustules carbolised oil (proportion one to four, scented with oil of wild thyme), cautioning them to avoid as far as possible the unaffected skin, so as to prevent the toxic effects of the acid absorbed from the cutaneous surface. The application is attended with an anæsthetic, and certainly not

an irritant, effect. After one or two repetitions the surface may be washed with water containing some of the alkaline permanganate solution (Condy's fluid), and during convalescence the ablutions should be made with coal-tar soap. Mr. J. R. Stevens, of Plymouth, who has employed this plan of treatment with much success, uses also a wash containing chloralum to the pustules. The astringent as well as antiseptic qualities of this substance probably contribute to its usefulness in this direction. Mr. Stevens also counsels at the conclusion of treatment a bath containing a pint of chloralum, to render disinfection more certain.[1]

In conclusion, I venture to hope that my professional brethren will fairly test the antiseptic treatment of this dreadful malady, and I trust that they will prove it to be, in the words of Dr Foot, "the plan best adapted to save life, to prevent deformity and to check the propagation of the disease."

[1] British Medical Journal, p. 127, Feb. 23, 1872.

A CASE OF TUMOUR OF THE BRAIN, WITH THE OPHTHALMOSCOPIC APPEARANCES OBSERVED.

BY JOHN HADDON, M.A., M.D.,

Eccles, Manchester.

WILLIAM R——, aged 26 years, a pattern-maker.

Family History.—His father and mother are alive and well. An elder brother died some years ago from what was called inflammation of the brain. A younger brother suffers from deafness. The other children are tolerably healthy.

Previous History.—He enjoyed good health until Christmas 1869. About that time he was knocked down in the street, and fell, striking the kerb-stone with his head just above the left eye. He was rendered unconscious by the blow, and kept from his work for some days. In August 1870 he sailed from Glasgow to Liverpool, and reached his home at Patricroft on a Saturday. On the Sunday while in chapel he had a headache, became faint and sick, so that he had to go out. He was, however, better in a day or two, and kept well till Christmas 1870. At that time, while at a party in Edinburgh, he had another attack of pain in the head, and vomiting. This time he was unconscious, and had to be taken home. He was at work again in a day or two. In the beginning of 1871 he often had headache, giddiness, and sickness, but thought they were bilious attacks. While walking, occasionally he would become quite blind, and have to stand still for a minute or two till he recovered sight. From March 1871 he was not able to go to his work so regularly as usual. In the end of July 1871 he had a third attack of pain in the head, and vomiting, but was better again in a couple of days. He worked for about a fort-

night after this attack, when a doctor advised him to go to the country for a change. He went to Slateford, and felt tolerably well, being able to walk three or four miles at a time. One morning in August, while at breakfast, he was seized with cramp from head to foot, vomited much, was unconscious for a whole week, and confined to bed for three weeks, said to be suffering from some fever.

Having recovered somewhat, he travelled from Edinburgh to Patricroft on September 9th, and stood the journey pretty well. On September 13th I was called to see him.

I found that about 7 A.M. he had begun to vomit, became unconscious, and was thought to be dying by his assembled friends. When I saw him about 8.30 A.M. his pulse was over 100, small and weak, temperature 99°. Cardiac sounds normal. Respiratory system normal. The tongue was covered with a thick white coat: the bowels were confined, and urine was abundant. His pupils were dilated, and he lay sighing, moaning, and complaining of pain in his head. In the afternoon he was much better, and was up and going about in a few days.

When going about and in good spirits he had almost constantly more or less pain in the head, principally over the occiput. He seemed slow in moving his head, and had a heavy expression of countenance. On Oct. 4, 1871, while out walking with a friend, he suddenly had pain in the left side of the head, could not see, and felt very stupid; but this feeling soon passed away.

On Oct. 5th I examined his eyes with the ophthalmoscope. The left disc could be made out only by the vessels entering it and by its slightly lighter colour. It gave me the idea that the disc was swelled. The veins presented a beaded appearance.

The right disc was distinct enough, the vessels were well seen, and it had a greyish hue all round the circumference. He could not read so well with the left eye as with the right, but could see pretty well with both together. He had himself observed that the right was the better eye for some time. On Oct. 7th he was feeling very well; the left disc was more obscurely seen, and the right also had a red cloudy aspect. He kept well until Oct. 10th, when, having had a rough drive,

and walked two miles, he became very ill. He vomited, was delirious and noisy till 3 A.M., when he fell asleep. When I saw him in the forenoon of Oct. 11th he was quite sensible. His pulse was over 100, small and weak. He said his head felt very heavy, as if a 56 lb. weight was suspended from it. He had no recollection of what had happened the night before.

From Oct. 10th the discs gradually became clearer, and on the 21st were very distinctly seen. All this time he was going out and in good spirits, without any distressing symptoms. On examining the eyes on the morning of the 25th, I found the discs red and indistinct again. He also complained of more pain in the head. Anticipating another attack, I ordered leeches to the left temple, and advised him to rest during the day. In the afternoon he began to feel very ill; he did not know his friends. His pulse was 70. He moaned, complaining of his head, and saying he was like to die. He was also very sick. All that night he tossed about and moaned. On the 26th, when I saw him at ten o'clock, his pulse was over 100, but he was quite conscious and knew me, although his sight was very indifferent. On the 27th he felt better. The discs were clearer again. He could see better, and his pulse was 104. On the 28th the pulse was 84, and he was sleeping well. He continued to improve till Nov. 14th, when he went to Manchester by 'bus. That night he had an attack similar to the others, but did not get over it so quickly.

From Nov. 15th till Jan. 1st he had several slight attacks. His memory began to fail, he became deaf, and the pain in his head was constant and severe. On Jan. 1st the right disc was very distinct, and appeared normal. The left was not so well defined. On the 9th he had another attack. On regaining consciousness he did not know where he was, and believed his mother to be a witch. On Jan. 13th he told me that he had been making strange mistakes, and could not help laughing at the idea of his mother being a witch. On the 20th the discs were well seen, their definition being better than I had before observed. On the 23rd the cloudy indistinct appearance of the discs was again observed. On the 28th he had another attack; his friends could not understand what he said, he spoke so badly. He was also quite blind and deaf.

On Jan. 30th he had rallied from the attack, but was still deaf, especially on the left side. His speech was improved. The discs were still cloudy and indistinct.

From Jan. 30th until Feb. 10th he kept tolerably well. Early in the morning of Feb. 11th he was seized with a severe pain between the shoulders, became unconscious, and lay quite still for some minutes with his eyes wide open. He then became convulsed on the right side, and was sick at intervals for some hours. When he rallied he was quite rational, but did not know he had been ill.

On Feb. 12th, Dr. Samelson, surgeon to the Eye Hospital, Manchester, examined his eyes ophthalmoscopically, and kindly furnished me with the result of his examination, which is as follows:—

"When on the 12th Feb. last, at Eccles, I had the opportunity given me by Dr. Haddon of examining the eyes of William R——, I noticed the following:—

"Both pupils appeared slightly larger than usual, but acted freely. In vision the right eye was much the worse of the two; with it the patient could only make out a large print, whilst with the left he was able to read a small newspaper type. Yet, in the right eye, the ophthalmoscope discovered scarcely anything abnormal, unless the fact of one-half of the disc being a deeper pink than the other was of pathological import. Contrariwise, the left eye being so good at reading, showed the principal vein entering the optic papilla from above to be irregularly filled, *i.e.* partly within and partly at a short distance from the margin of the papilla, as it were obstructed by a plug. The contour of either disc was well defined. When Dr. Haddon averred that shortly before and all along the right eye had been much the better of the two, and that apparently there had been some sufficiently marked evidence of neuritis, I was fain, from the presence of unmistakable symptoms of cerebral disease, to presume that the optic papilla might have been off and on the seat of an 'œdema fugax.'"

On Feb. 17th he had another attack, in which he was again convulsed on the right side, but not at all sick. He did not seem able to concentrate his thoughts on one subject for any length of time. On Feb. 22nd he awoke early in the morning

with dreadful pain all over the head. He was in perfect agony and very sick. On Feb. 23rd he was unconscious during most of the day. On the 24th consciousness had returned. On the 25th he was very frivolous, and kept joking and wishing to get up. His voice seemed changed also, being much stronger. On Feb. 26th, at 4.50 A.M. he awoke with dreadful headache, which returned at intervals of about an hour till 7.30 A.M., when he became sick. After this he talked quite sensibly and believed he was dying, saying he felt done across the forehead. About 8.30 A.M. he lay still, with his eyes open, in a convulsed state, and then he sighed. They thought he was recovering, but he continued to lie still, became livid in the face, and, breathing calmly, died at 9 A.M.

A *post-mortem* was not granted, so that some may question the correctness of the diagnosis. From the symptoms I had no doubt that it was a tumour, and the appearance of the optic discs would seem to confirm that diagnosis; still, I must admit that without being able to demonstrate the site and nature of the tumour, the case is not complete.

One point, however, I think is worthy of notice, viz. the way in which the optic discs varied with the symptoms. Dr. Clifford Allbutt, in the *Brit. Med. Journal* for April 27th, 1872, in an article on the choked disc, says, at page 444:—

"He (Manz) even goes further than this, and believes that he has several times seen the swollen disc recede with relief of other symptoms of pressure; and on the other hand has seen the disc become prominent as the symptoms, such as sopor, &c., reappeared or set in for the first time. Further observations on this most interesting point are required."

In this case the change from the clear defined outline of the discs to a state in which they could hardly be seen was very well marked, and I was able, by an examination of the eyes, to tell that an attack of pain, unconsciousness, &c., was impending. The ophthalmoscopic examination gave far more information as to his real state than I could derive from any other method of examination, or from the feelings of the patient himself. Thus, when he felt as well as usual, the discs have shown that he would soon be much worse. To prove that the swelled state of

the discs foreboded an attack, and that the swelling disappeared after an attack, I may point to three separate seizures on Oct. 10th, Oct. 25th, and Jan. 28th:—

Oct. 5th, 1871.—Discs cloudy.
„ *7th* „ Discs more cloudy.
„ *10th* „ Had an attack.
„ *13th* „
„ *16th* „ The discs gradually cleared up till they were quite clear.
„ *18th* „
„ *21st* „
„ *25th* „ Morning: The swelled state of the disc was again observed.
„ 25th „ Evening: He had an attack.
Jan. 20th, 1872.—The contour of the discs well defined.
„ *23rd* „ Discs swelled again.
„ *28th* „ Had an attack.

With regard to treatment, he had hydrate of chloral, bromide of potassium, and for some time he took a mixture of iodide of potassium and the bichloride of mercury. Of external applications, he had occasionally leeches to the left temple; first blisters were applied, and then a seton was put into the back of the neck.

WESTMINSTER HOSPITAL PAPERS.

XV.

DISLOCATION OF THE RIGHT FEMUR—FRACTURE OF SEVERAL RIBS ON THE RIGHT SIDE—EXTENSIVE EMPHYSEMA—REDUCTION OF DISLOCATION BY MANIPULATION—DEATH.

UNDER THE CARE OF MR. BARNARD HOLT,

Senior Surgeon to the Hospital.

PATRICK COLLINS, aged 46, a strong muscular man, was admitted into the Westminster Hospital April 8th, 1872, at 10.30 A.M., suffering from the above injuries. He stated that he had fallen from a height of 70 feet on to some bricks, having struck and broken a mattock in his descent. He was breathing with difficulty, and emphysema could be detected all over the right side, extending to the neck as well as over a considerable portion of the opposite chest. He complained of extreme pain in the hip; his lips were blue; pulse feeble, but regular; and he was covered with a cold perspiration. Some brandy was administered, and he was wrapped in blankets to restore warmth. An examination showed that several of the ribs on the right side were fractured, and that his right hip was dislocated apparently on the dorsum of the ileum; the thigh was somewhat flexed upon the abdomen, and the axis was across that of the opposite side, the great trochanter being displaced backwards and upwards.

At Mr. Holt's visit the injury was diagnosed to be a dislocation of the femur, with the head of the bone resting on the lip

of the sciatic notch, with fracture of several ribs, and great shock to the system. After reaction was somewhat established he was removed to the theatre, but in consequence of his extreme dyspnœa Mr. Holt decided that chloroform should not be administered. The patient having been placed on a mattrass, his back on the ground, a thick cushion was allowed to rest on the crest of the ileum, so that firm pressure might be made upon the pelvis to prevent its following the movements of the limb. Mr. Holt, having placed himself on the left side of the patient, put his foot upon the pillow, covering the pelvis, and having flexed the leg upon the thigh, he gradually brought the limb towards the opposite shoulder, forcibly bending the knee towards the opposite side, and then somewhat suddenly abducting the limb, and rotating it outwards. An audible grating snap was heard, the limb became at once altered in its relation to the pelvis, but upon comparing it with the other it was found to be two inches shorter, and it was evident the head of the bone had slipped into the sciatic notch; the limb was therefore again flexed, rotated outwards, and suddenly abducted, when it slipped into the acetabulum with an audible noise. The whole operation did not occupy more than two minutes, and the amount of force that was required was very trifling, certainly not more than could be used by one person. The legs were now tied together, and the patient removed to his ward. He expressed himself quite free from pain as soon as the dislocation was reduced. Directions were given that small quantities of stimulants should be administered, and that he should be kept perfectly quiet.

April 9.—Patient had passed a restless night, the difficulty of breathing had increased, his respirations were more frequent, and the emphysema had considerably extended; his face was purple, skin cold and clammy, expression anxious, and pulse very feeble. The rattling in the trachea showed great increase of secretion, and inability to expel it. The patient never completely rallied, and he died the same evening.

No post-mortem being permitted, it was impossible to ascertain the exact amount of injury to the lung, or the laceration of structures comprising the hip-joint.

In some clinical remarks upon the case, Mr. Holt mentioned that its great interest consisted in the injury to the chest and its contents, the shock to the system, and the local injury—dislocation of the thigh. With regard to the first, there was no question that several ribs had been fractured, and that there was severe laceration of the lung and pleura; this was at once evident by the immediate supervention of emphysema to a marked extent, not confined to the immediate seat of the fracture, but rapidly extending over the whole of the injured as well as that of the opposite side. And although it is true that a small opening into one or more of the air-tubes of the lung may give rise to considerable emphysema, yet the process is slower than that which occurred in the present case: thus the gravity of the symptoms was materially increased, and the prognosis was much more unfavourable. It was very much to be regretted that no post-mortem could be obtained, as there was great probability that not only had the air made its way into the pleuritic cavity, constituting pneumo-thorax, but that it had also permeated the tissue of the lung, constituting interlobular emphysema, and so by pressing on the air-tubes prevented proper aëration of the blood, causing the blue cast of countenance which in this case was so marked. The shock to the system was very great; from the time of admission the patient's pulse was small and feeble, and his skin was covered with a cold perspiration. These two causes were quite sufficient to forbid the administration of chloroform; and if it had been used, however carefully, there is every probability the danger would have been considerably enhanced, even if the patient had not died at the time. The manner in which the dislocation was reduced was interesting from its simplicity and the ready way in which the reduction was effected, based on common-sense principles. It was accomplished by placing the limb in the position most favourable to restore it to its natural position, and by so doing the bone was replaced with the greatest ease. The directions were carried out in accordance with the instructions given by Wormald; and although at first the head of the femur was shifted from one part of the pelvis to another, which, under old directions, would have rendered the reduction a matter of great difficulty, yet here by very slight

force the head could be disengaged from the sciatic notch with the greatest ease, when it immediately slipped into the acetabulum. No doubt the prostrate state of the patient greatly facilitated the issue of the operation, but not so much as if all resistance had been subdued by the proper administration of chloroform. The case must, therefore, be regarded as very satisfactory, and sufficiently encouraging to repeat the mode of treatment on any future occasion.

THE ELIMINATION THEORY OF THE CURE OF DISEASES.

BY DR. ANSTIE.

PART III.

In commencing another section of the present investigation, I must remind my readers of the real nature of the question at issue. In spite of Dr. Johnson's disclaimers, I must persist in the statement that an exceedingly prevalent view of pathology and therapeutics, which Dr. Johnson's able writings have largely helped to popularise, is distinctly vitalistic in character. I may be allowed to remark, as Dr. Ross has already done, that the eliminationists cannot run with the hare and hunt with the hounds. When they propose to prove the existence of a "tendency" of the animal organism to deal in the same general manner—that of elimination—with such exceedingly various and dissimilar morbific agents as the mineral poisons, the vegetable alkaloids, and the contagia of epidemic diseases, it is plain that they are not really speaking of anything which is comparable with any of the physical or of the physiological laws of which we have some real knowledge. They are speaking, however unconsciously, of a hypothetical presiding vital force, specially provided for the protection of the organism against the assaults of morbid influences, or—they are speaking without intelligible sense.

I have no wish to fight against this theory unfairly; and it would undoubtedly be unfair to urge that arrangements, even though they were especially designed to protect, must needs be *completely* protective. But there can surely be no question that if the phenomena of elimination which we can observe in

animal organisms are to be considered as a portion of a predetermined scheme for opposing morbid influences, we ought to be able to demonstrate that they are to a large extent effective in preventing death and in mitigating injury which might be caused by those influences. Now, the examples afforded by the reactions that occur in the body when it is affected by the various vegetable and mineral poisons have been assumed to afford strong presumptive arguments for the efficacy of such prevention, and the probability that it obtains also in the case of animal poisons. That is the first position which I dispute: and the present and some following papers will be devoted to the proof that, in fact, there is no such degree of remedial efficacy in the eliminative processes that occur in various forms of vegetable and mineral poisoning: this argument will be preliminary to the consideration of the phenomena of animal poisoning. In the first paper of this series the case of alcoholic poisoning was already examined, and it was found that elimination is totally ineffective. In the present paper I take up the consideration of the phenomena produced by mineral poisons; and I begin with the case of arsenic.

In examining the elimination of arsenic, with a view to realising its extent and the degree in which it can fairly be made the ground for argument, by analogy, as to the preservative elimination of morbid poisons, it is necessary, first, to reflect on the physical properties of the drug. Of these there is none more remarkable than its diffusibility. This property, which can be demonstrated by physical experiment outside the body, is no less conspicuous in the results of arsenical poisoning of men and animals: for example, it is well known that in animals to whom arsenic has been given, it has been found in the remotest parts of the body within an hour and a half from its administration; and that the diffusion was here a purely physical matter, altogether unconnected with preservative design, cannot be doubted; for it not only takes place with indifferent rapidity towards the kidneys (from which the poison can be carried off with the urine), towards the spleen (a ductless gland), and even towards the fœtus in utero in pregnant women, but it obviously passes, not merely by the channels of the blood circulation, but by continuous imbibition, between tissues and organs that

are merely contiguous, just as it can pass from a dead liver to a dead stomach, which merely happens to be placed for a short time in the same jar. Now, this physical quality of rapid diffusion, although it suffices, together with the circulation of the blood, to carry the poison everywhere in the body in an extremely short time, and though (partly in consequence of it) a considerable escape actually takes place, cannot be said to effect any useful purpose in cases where life is actually endangered by arsenic. What are the facts? A poisonous dose of moderate size, say twenty grains (unless something hinders its absorption), kills an adult man in from twenty to twenty-four hours. On the other hand, in persons poisoned with a dose just too small to kill them, it appears that it may take from three weeks to a month[1] to rid the body of the poison. It appears, also, that the more rapid and active part of the elimination—that effected by the kidneys—which commences a few hours after the administration of the poison, is not completed for many days: after which there are, in most cases, not inconsiderable quantities of the poison still scattered about in the viscera, to be subsequently taken up into the circulation and eliminated in the bile, the gastric and intestinal secretions, &c. Thirdly, it does not appear that in all the very large field of experience which the frequency of arsenical poisoning has thrown open to the profession, a single discovery[2] has been made tending to show us how to effectively assist the elimination of arsenic that has once passed into the system. The most that can be said is, that although the organism is perfectly powerless to resist the injuries inflicted by arsenic, yet, if the dose has been so small that the injuries are not of great gravity, recovery may take place, and that simultaneously with this process of recovery the poison is gradually escaping out of the organism. But, on the other hand, there are many cases on record in which, just about the time when the escape of the poison may be supposed to have arrived at something like completeness, the patient succumbed to the lesions which had been inflicted.

The case of antimony is so similar to that of arsenic, that we

[1] Bonjean.

[2] Orfila hoped that diuretics might effect this: but subsequent experience does not support the idea.

may as well glance at the features of its poisonous action before summing up what we have to say of the latter drug. Excluding the case of the rejection of the drug by vomiting before it has had time to enter the blood—which of course is not a case of elimination in any such sense as we are now speaking of—it may be said that antimony, on the whole, is absorbed with equal rapidity, and is eliminated in the same manner, as arsenic. Slowness and inefficiency of escape is the rule, even in regard to acute poisoning by one or two very large doses: but, in addition, we possess some highly important special evidence with regard to the effects of slow poisoning by antimony. For instance, MM. Millon and Laveran poisoned dogs, for a period of ten days, with daily doses of four and a half grains of tartar emetic; they discovered antimony, in large quantities, in the bones and in the liver of an animal which was killed four months after the discontinuance of this treatment. Dr. Nevins also investigated the effects of chronic antimonial poisoning. He administered tartar emetic in powder, four times a day, in doses of half a grain, one grain, and two grains, to rabbits, and his results were confirmatory of the conclusions of Millon and Laveran: it was established that although an escape soon began, and went on constantly by the channel of the kidneys, large quantities of the poison remained in various part of the body long after the last administration: it was found in the bones of one animal thirty-one days after the last dose had been given. The universal diffusion of the poison and its exceedingly slow and inefficient escape were strikingly demonstrated.

On the whole, it seems clear that careful reflection on the facts concerning elimination in arsenical and antimonial poisoning can only lead to one conclusion. It would be wrong to assert that the escape of the poison has no beneficial influence whatever—that the passage out of the body of a certain proportion of the drug does not in some degree mitigate its effects; indeed, there is great probability that the foolish and perilous "contra-stimulant" mode of treating pneumonia with very large doses of tartar emetic, was robbed of some of its dangers by the considerable escape which took place from the pulmonary mucous surface; but if so, that was probably due to the accidental fact that the lungs were overfilled with blood, and the

physical diffusive power of the salt therefore necessarily produced a greater local discharge. So, again, it would be wrong to assert that persons habitually breathing an atmosphere poisoned with the dust of an arsenical wall-paper, are not, in some small and feeble degree, protected against the evils of such a condition by means of a small daily urinary discharge. But the general lesson of the whole evidence is, that this protective action is irregular, capricious, and on the whole too weak to effect any important good in the great majority of cases. The power of physical diffusion, indeed, is neither feeble nor uncertain; but the structure of the animal organism, instead of favouring, on the whole distinctly interferes with the benefits which might be obtained by the unimpeded action of that power, since it prevents the poison from being quickly and wholly directed into the channels of escape. But we shall return to this subject presently.

The next example of the action of a mineral poison which I shall consider is that of lead: this is a very noteworthy poison, in regard to our present subject, for on the one hand it has been appealed to on behalf of the elimination doctrine, and on the other hand it can be shown to offer some of the most insurmountable obstacles to the reception of that doctrine.

Lead is not now-a-days very liable to be administered in large quantity: it more commonly enters the body in a series of small doses spread over a long period; as in the case of drinking-water which has become impregnated from lead pipes or cisterns, or the fumes of lead breathed by smelters, or particles of lead daily introduced (either through skin, lungs, or stomach, or all these) into the system of house-painters, plumbers, paper-stainers, &c. If ever there was a case in which the process of natural elimination might be expected to do great things in the way of preventing the consequences of the ingestion of a mineral poison, it is this: for the toxic agent is not thrown suddenly, in overwhelming quantities, into the system; and, on the other hand, analysis has proved that a certain amount of the lead is, from an early period, regularly and constantly escaping by the kidneys. Notwithstanding this, however, there is not a particle of evidence to show that this spontaneous escape ever exercises the least influence in averting the evil;

consequences of chronic lead-poisoning; on the contrary, the phenomena go on with inexorable regularity. The metal is continuously deposited in the various organs and tissues, with the successive results of producing intestinal colic, palsy, and wasting of certain voluntary muscles, and finally (where the quantity ingested is large) fatal effects on the nervous centres. Natural discharge, in the case of lead, seems to be even much more slow and ineffective than in the case of arsenic or antimony: its action is altogether nugatory.

The above facts concerning the so-called elimination of the principal metallic poisons were discovered a good many years ago, before the researches of Bence Jones and Dupré threw so much light upon what those observers called the "chemical circulation" of substances introduced into the body. But these latter researches afford most important reinforcements to my argument. They deal chiefly with mineral substances that are, on the whole, far less apt to cling persistently to the tissues and organs of the body: nevertheless, they indicate very plainly the entire inefficiency of natural elimination as a defence against the effects of mineral poisoning. They show that the course of events, after the ingestion of crystalloids, is this: that these substances are absorbed with exceeding rapidity, carried instantaneously to the furthest ramifications of the circulation, and in a very brief period extruded (in part) from the circulation into the minutest elements of all the tissues, even of those (*e.g.* crystalline lens) which are most completely isolated from the vascular circle; and that whereas the whole process, so far, occupies only from a few minutes to a few hours, it is several days at least before the deposited substance disappears again into the circulation. It is obvious, I think, that this series of processes is almost the exact reverse of such an elimination as would be likely to favour the deliverance of the body from the action of a poison in time to save life or avert serious lesions. So far from the arrangements of the animal organism being adapted to the swift expulsion of mineral poisons, it would be more correct to say that the tissues form a vast net, in the meshes of which these agents are inevitably entangled almost as soon as they enter the body, and from which their exit is necessarily very slow. The very same arrangements which are necessary and

most beneficial in promoting the ordinary nutrition of the body, and which are our most potent auxiliary when we desire to produce a profound impression upon the body by medicines, constitute one of the chief sources of danger in the case of mineral poisoning.

The remainder of the present paper may be usefully devoted to some general considerations which seem to be curiously little appreciated by many persons who argue about elimination. The presence of various substances in the urine or other excretions is constantly paraded, when it happens to suit the theorist's purpose, as if it were a proof that the organism had expelled that substance as either dangerous or effete: and it scarcely seems to enter the minds of most people that there is such a physiological phenomenon (and a very common one, too) as mere *overflow*. A strong instance of this is the medicinal action of iron; for there cannot be a doubt that in the treatment of ordinary anæmia we habitually flood the organism with a large excess of iron, only a small part of which can be actually applied to the hæmatinic process, while the remainder escapes as mere surplusage in the excreta; but, on the other hand, there are good reasons for thinking that comparatively large doses of iron are really necessary to produce the intended effect. [I say "comparatively large," because there is no doubt that very large doses, especially in persons with irritable mucous membranes, often entirely defeat the physician's intention by disordering the alimentary canal in a way that prevents absorption.] Even where the iron is given with the single intention of augmenting the development of red corpuscles, it seems certain that this (at first sight) wasteful expenditure of the drug is a real necessity, the use of smaller quantities failing to produce the desired effect.

An exactly analogous instance of mechanical overflow, which plainly has no preventive function, but is mere waste, is afforded by the case of iodide of potassium, a substance the ready detection of which in the urine is proverbial. The matter is deeply interesting, even as a mere point in medical history. The iodide used to be employed, some years ago, in what we should now call very small doses, viz. three and five grains; and it was repeatedly observed, by experiment, that these doses caused an almost instantaneous appearance of the salt in the

urine. It was at that time very generally supposed that larger doses would prove dangerous; and although Buchheim found that dogs and cats could take a daily amount of iodide equal to half a grain to the kilogramme of body-weight (or something like the equivalent of 30 grains daily to a man weighing 125 lbs.), there were abundant stories of iodine poisoning from much smaller quantities; indeed "iodism" was a serious and haunting apprehension in the minds even of well-informed physicians. Time has changed all this. The pressing need which has arisen, as we learned to appreciate the frequency and formidable nature of the syphilitic lesions of viscera, for a prompt and powerful remedy for tertiary syphilis, has driven physicians to the need of greatly increased doses of the iodide, and at present the legends about "iodism" are, if not considered wholly mythical, at least much more moderately estimated. It has now been proved, by experience on an enormous scale, that the great majority of adult men and women (without reference to their body-weight) can take from 30 to 60 grains of iodide daily, with perfect impunity, for weeks and even months together: and that indeed something like these quantities is quite necessary to produce the most important benefits of the drug. The subjects of "iodism" are evidently a very limited number of persons, with peculiar temperament, and by these scarcely even the smallest dose of the drug can be taken without producing the characteristic catarrh, &c. In fact, the organism behaves towards iodide of potassium in a manner which, if we are to suppose it part of the designed arrangements of Nature, would lead us to some singular conclusions as to the beneficence of that power.

The mention of iodide of potassium leads me to notice another very obvious consideration which the eliminationists have entirely overlooked. They have continually attempted to make capital out of the fact (which appears to be true within limits) that iodide of potassium will eliminate lead which has been taken into the system. It is strange that they do not see that the very combination of circumstances which enables the iodide to render this particular service is probably almost, if not quite, unique. We have in the first place a remedy which possesses the highest degree of chemical affinity

for the poison we wish to eliminate, and forms with it a definite salt sufficiently soluble to be carried out in the fluids of the body in pretty considerable quantities; a remedy, moreover, which is extraordinarily diffusible, and can be given with impunity in such quantities that it is possible thoroughly to sweep the tissues with it, so to speak: and finally, the evil is one which, to an extent scarcely paralleled in any other case, is dependent on the actual local presence of the poison, and can, in some cases, be almost immediately relieved, in each tissue and organ, by the removal of the poison therefrom. But indeed the subject of lead-poisoning and its treatment is one which the eliminationists would do well to bury in profound silence; for the slightest inquiry into the facts exhibits the organism as perfectly helpless under the inroads of the poison, and showing no natural tendency whatever towards effecting its own relief: while the remedy which (not till the middle of the 19th century, and then quite casually) has been found partially effective for its help is one of a most exceptional nature, in itself, and in its relation to the evil for which it is administered. And after all, let us not forget that the efficacy of the iodide in lead-poisoning is by no means universal. Even among recent cases, I regret to say, there are many failures: I say this with confidence, as the result of many years' out-patient practice, during which the subject has been constantly coming under my attention.

In short (for I could have multiplied examples indefinitely), there is no direction in which we can turn the eye, in the whole field of mineral poisoning, from whence we can derive the slightest support to the idea that the natural tendencies of the organism are towards self-defence against poisonous influences by means of elimination. Whether, even had the reverse been true, the argument by analogy would have held good for the case of zymotic poisons might well be questioned; but the inquiry is not at present necessary, for the supposed facts do not exist.

THE NEW ALCOHOL RESEARCH OF M. SUBBOTIN.

NOTE BY THE EDITOR.

WE are unfortunately unable, from pressure on both our time and space, to analyse the important-looking alcohol research of M. Subbotin, which appears in a recent number of the *Archiv für Biologie.* But we cannot allow a month to pass away without mentioning that a first reading has already shown us that this paper has little scientific value. M. Subbotin announces that he has discovered a total elimination of 16 per cent. of ingested alcohol (or alcohol and aldehyde!) from the skin of animals. But in truth, though there is considerable outward appearance of accuracy (a Pettenkofer's chamber having been employed), the experiments disregard many precautions which are of principal consequence in investigating this question of alcohol-elimination. It is only necessary to mention, here, two of these lapses:—In the first place, the animals employed in the research were rabbits—about the most unsuitable that could be found; and, secondly, the doses were invariably strongly narcotic doses. These mistakes alone would be fatal to the value of the paper; but in truth, as we shall show in our next number, the facts and conclusions are put together in a manner which indicates that the author has not understood the real elements of the question at issue. Moreover, he is quite unmindful of the fact, so effectively demonstrated in Dr. Dupré's paper which we published lately, that unless the eliminationists can show the probability of an elimination, not of 16, but of 100 per cent. of the ingested alcohol *within each twenty-four hours*, they have not helped their case in the least.

Reviews.

Manuale Eclettico di Rimedi Nuovi. Per G. RUSPINI. Bergamo, 1871. Pp. 778. (*The Eclectic Manual of New Remedies.* Seventh edition.)

THOUGH Italian thought and work in medicine and its allied sciences have, comparatively speaking, small influence on practice in this country, yet they are both good and active, especially so in the direction of therapeutics; and amongst workers in this field the author of the work before us holds a deservedly high position.

"Fifteen years of unwilling rest," he says in the Preface, "have passed since the last edition, and during that time I have not ceased to follow the progress of knowledge, and to study, with calm consideration, the opinions for and against debated remedies, and to collect those most generally accepted by therapeutists."

The result is a useful and trustworthy manual, resembling in its general character the work of Neligan more than any other that we have in our own language.

Under each substance mentioned are some notes of its history—a careful and evidently practical account of its preparation: then its properties, uses, and doses; and certain "elegant" preparations—syrups, glyceroles, &c. The chemical formulæ are in the old notation; the chemistry of the reactions is not entered into. The arrangement of the book is arbitrary and independent of any classification. The last edition began with "New Substitutes for Quinine:" it is interesting to note in this that instead of *them all*, we have the "Terapia Solfitica," or cure by sulphites, which salts, "strongly fought for by the illustrious Dr. Polli, if they have not dethroned quinine, stand certainly at its side." The success of these remedies, which is estimated—and we believe with justice—very highly, is attributed to their anti-fermentation properties; and the theory that fevers, and allied diseases, depend upon a kind of ferment in the blood, is strongly urged without any expression of doubt. This section is, in fact, a good and appreciative abstract of Prof. Polli's able researches, and it must be

gratifying to him to find the progress that "sulphur medication" has steadily made.[1] It is curious how nearly the expressions used to explain the antagonism of the sulphites to fermentative processes resemble the expressions used by Binz in proving the similar antagonism of quinine; we find, however, no reference to Binz's researches. Neither are the sulpho-carbolates referred to, nor the use of the sulphurous spray, nor of inhalation generally.

After the sulphites come the cinchona alkaloids; and the author reminds us of his share in introducing the bisulphate of quinine into general use in lieu of the neutral and less easily assimilated sulphate, by which change he calculates that "Paris alone economises two million (scudi?) a year!" The pharmaceutical part of this section is good, and describes a number of compounds—the citrate of quinine (Galvani), said not to cause cinchonism; the phosphate, the lactate, and valerianate (made first by Prince Lucien Buonaparte), and many others; also cinchonine and the alkaloids of allied barks, as chinidine, aricina, paricina, &c., but the more exact chemical and physical description is not attempted, probably to avoid the overcrowding of scientific detail—and, we think, wisely—in a manual for the practitioner. Dr. Bence Jones's animal quinoidine is referred to, but as unproven. Next comes opium, which is quaintly described as "an inexhaustible mine of alkaloids;" new ones are only named as being as yet unused; the discovery of a new base by Mr. Matthiessen is mentioned—"remarkable for emetic properties, but not yet named" (apomorphia). For a summary of the action of the alkaloids, the author is content with Ozanam's (1864); subcutaneous injection as the regular mode of administration is not mentioned.

In describing poisonous substances, an additional paragraph is devoted to antidotes; and it is noteworthy that belladonna, henbane, and stramonium are the only ones mentioned under opium; Giaccomini's positive assurance of this antidotal power is quoted, though not absolutely endorsed.

In describing the salts of morphia, Ruspini points out that he was instrumental in securing the more general use of constant salts, as the sulphate and hydrochlorate, in preference to the more variable acetate.

About eighty pages are devoted to other alkaloids, beginning with strychnine, ending with piperine, and including nicotine, emetine, caffeine, &c.: the last is spoken of as a strong stimulant, poisonous in large doses, a diuretic, and in medicinal doses a remedy in headache and lowered vital power. Of atropine there is a good therapeutical account, including its subcutaneous use, and also Harley's researches.

[1] One of the latest and best instances is afforded by Dr. A. W. Foot's paper on Small-pox. (Dublin Journal, March 1872.)

The following section is devoted to bitter extractive and neutral principles, including digitalin, colocynthidin, lupulin, scillitin, &c. The account of the first-mentioned is from Homolle (1864); the only more recent references are to its use in fevers (Jacobi), and to the external application of the leaves (Brown, in *Med. Times*). Of elaterine the author remarks, "I have never seen it used, and think its disuse very reasonable whilst we have other drastic purgatives which cost less." Santonin has full credit for its vermifuge properties, but no notice of its other therapeutical effects, nor of its power of improving vision. Floridzine, the crystallisable principle contained in the roots of the apple, pear, cherry, and plum trees, is spoken of as a febrifuge and stomachic in delicate women and children, when quinine disagrees. The Virginian prune is not mentioned. Of ergot, the preparations most in use on the Continent are the watery extract of Bonjean (improperly called ergotin) and the resinous extract of parola; both these are said to contain the active principle (resinous), and to be of service without causing ergotism. Special stress is laid on their value in hæmatemesis, in excessive secretion generally, and in the dressing of wounds; its subcutaneous use in aneurism (Langenbeck) and in hæmorrhage is referred to. The "ethereal oil of ergot" (Wright) is only mentioned as disused, "for it owes its efficacy only to the amount of resin taken up, and that is uncertain." The notice of asparagin, a substance which may yet have a medical future, is interesting, and is founded on Prof. Piria's researches. He obtained it from the young plants of vetch (*Vicia sativa*) in rectangular prisms, as transparent as "precious stones of the finest water," without odour, and with slight taste "like broth;" it augments considerably the secretion of urine without sensible action on the rest of the economy, and it is hoped that it may in some cases take the place of digitalis without its risks.

Amongst the "animal principles," there is a curious account of Helicina, or the active principle of the snail (*Helix pomatia*), which has been recommended in phthisis (Delamarre). The creature itself has a sufficiently remarkable composition, containing as it does albumen, cholesterine, cerebrine, olein, and margarin, with carbonate and phosphate of lime, &c. (Gobley), but this excellent combination has not been strong enough to overcome the natural repugnance to it in this country. It seems that two forms of helicine have been prepared, one by Figuier, the other as a secret remedy in Paris; but the author asks, Why not eat the snails cooked in the usual way? and almost apologises for adding this to his long list of remedies.

Oxygenated water is directed to be prepared by passing carbonic

acid through a solution of peroxide of barium. It is highly spoken of in asphyxia, as oxygen is said to be disengaged from it by heat; there is no reference to medication by regular inhalation of gas, nor of compressed air.

Passing to mineral remedies and treating of the iodides and bromides, he expresses a very strong opinion—and, we think, rightly—that those salts of sodium and ammonium might often be substituted with advantage for the more freely used potassium salts.

A syrup of soluble iodide of starch seems to be another and not disagreeable mode of giving iodine when ordinary preparations cannot readily be taken. The formula in imitation of a secret preparation of Quesneville's is: powdered starch, 24 grammes; distilled water, 350 grammes; iodine, 2 grammes; powdered sugar, 640 grammes. Boil the water and starch in a glass retort for three or four minutes, then filter through linen; when cold, mix very slowly, and triturate carefully with the iodine, which has been previously finely powdered with a small quantity of alcohol; pour the mixture on to the sugar in a narrow-mouthed bottle, and shake it; let it stand one day; decant, and keep from the light: the result is a perfectly transparent syrup of a blue colour, miscible with water. The dose, a dessert spoonful night and morning to commence with. We find also a formula and account of iodoform and of chloral hydrate, of lactic acid, and lactate of iron. The hydrated oxide of chromium is proposed as a substitute for bismuth, on the authority of Hannon and others.

In a book bearing the name of Ruspini we naturally turn to the account of styptics. Three are specially recommended, viz. the "Acqua Pagliari," the perchloride, and the peracetate of iron. The former is prepared thus:—Benzoin, 200 grammes; rock alum, 300 grammes; water, 3 kilogrammes. Boil together for five or six hours in pan of varnished earthenware, constantly stirring the resinous mass, and replacing evaporated water with fresh hot water: filter, and keep in stoppered bottles. A drop of this forms coagulum immediately with blood, and if in proportion of one-fifth, the clot is solid enough to remain when the vessel is shaken or turned upside down.

Amongst more distinctively new remedies, which form a section of about one hundred pages at the end, we find Saoria, the dry fruit of *Maesa picta*, and Tatzé, that of the *Myrsina Africana:* both are vermifuges from Abyssinia, and, though reported good (Strohl), are at present very dear. Mussenna, another one, is preferred to Cousso; another bears the euphonious name of Uncomcomo, and is produced at the Cape of Good Hope by a species of aspidium.

The "Pinjivar Kar-Jambi" is an astringent moss from Batavia, and is classed with matico.

A group of eight other medicines recently brought from Brazil may be briefly described as astringents and tonics: the only one that has reached this country is the Barbatimaô (acacia), or *Coxten astringens Brasiliensis*. Perhaps it will be as well, before possessing the others, to make ourselves better acquainted with those we have.

Of Sumbul, he doubts the marvellous effects in cholera as reported from Russia; but recommends it in chronic catarrh, in asthenic pneumonias, in the "moist asthma" of the aged, in atonic dysentery, hypochondriasis, and in the leucorrhœa of delicate women.

There is a good account of Indian hemp, in which O. Stangnesy (*sic*) is quoted. Alcohol is mentioned as its antidote, and citric acid is proposed instead (Casteluuovo).

Melambo bark (*Rutaceæ*, Lindley) is a rubefacient and a general stimulant, used in low fevers, and especially in "rheumatic trismus and tetanus."

The "Chugniraga" is another febrifuge; and there is little doubt that the list of these remedies might be much extended, and will be as the therapeutical riches hidden in tropical vegetation are further brought to light, though it is probable that they will have more immediate interest for the people of those climates where intermittent fevers prevail than for ourselves. The *Ballata lanata*, brought from the opposite region (Siberia), is a diuretic used in Russia in dropsies. We have an account also of Coca, of Yerba Malé or Paraguay tea, of Curare, of Calabar bean, and others, but will quote only some notes concerning Guarana, as of special interest at present. It is a sort of small cake, made by the Indians in Brazil with the seeds of *Paullinia sorbilis* (*Sapindaceæ*), cacao, and starch. It is very rich in caffeine and tannic acid, and is used throughout South America as a dietetic tonic and cooling drink. Remedially it is administered in doses of thirty to sixty grains in severe diarrhœas; and in certain headaches, Hervé de Lavaur speaks well of its value in the former, not in the latter. Mantegazza recommends half a drachm in coffee, in the morning, for "one who works with his mind, and has somewhat tired his brain;" and again between breakfast and dinner, when one feels languid, it will invigorate. It is likely to inconvenience, especially costive persons, if taken soon after food. Cantani recommends the obtaining of entire seeds instead of Guarana cakes, in order to guard against adulteration.

From these remarks and extracts it will be seen that the book must not be taken as a "manual of new remedies" *only*, nor can it be considered as in all parts brought to the level of recent

work; yet we can with pleasure commend it as containing a quantity of useful and reliable information and a fair amount of pharmaceutical work. As a practical manual it is very creditable to the state of Italian therapeutics.

Das Chinin als Antiphlogisticum. Von DR. C. SCHARRENBROICH, poliklinischem Assistenzarzt der med. Klinik in Bonn. Sep. Abd. aus d. Berl. Klin. Wochensch.

IN this short paper, Scharrenbroich notices the objections lately raised by Dr. Zahn (Zur Lehre von der Entzündung u. Eiterung; Heidelberg, 1872) to the statements of Binz, Martin, and Scharrenbroich himself, as to the preventive influence of quinine on the inflammatory migrations of blood-corpuscles. The point of Zahn's objection is, that he believes the corpuscles fail to penetrate the vascular walls because the force of the circulation sinks; the heart being, in fact, narcotised by the quinine. Scharrenbroich points out that, on the contrary, this possibility had been fully considered, and all proper precautions taken, from an early period in the investigation of the question; and that, nevertheless, the cessation of the migrations, under quinine, had been distinctly observed to occur in vessels where the circulation remained free and forcible. He gives references to the published remarks of Binz, Martin and Günther, and himself; and sufficiently establishes his point, as it appears to us.

The Administration of Medicines in comparatively small and frequent Doses. BY JOHN KENT SPENDER, M.D. Lond., Surgeon to the Mineral Water Hospital, Bath. (Reprinted from the *British and Foreign Medical Review.*) London: Adlard.

THIS pamphlet is a specimen of a kind of therapeutical work which we desire to see become greatly more common than it is at present. Students and practitioners in England have rarely the opportunity to make those extensive and elaborate researches on the essential working of drugs which require the possession of access to a well-mounted physiological laboratory. It is, however, a great mistake to suppose that the only reliable new information that we can now obtain respecting the action of drugs is that which comes from laboratory studies. On the contrary, there are a large number of questions which absolutely must be worked out on the diseased human subject: and among these there is none more important than the question of dosage.

When the writer of the present remarks ventured (in "Stimulants and Narcotics," 1864) the statement that the action of the same drug, under varying conditions of dosage, might, and usually

did, present phases that absolutely differed from each other, in *kind* and not merely in degree, he was conscious of saying what was opposed to the whole bent and prejudice of the average medical mind, which was, and always had been, inclined to ticket each drug with some definite title, denoting its action on the body, and then to assume that action must correspond in kind with the more violent sort of phenomena which the medicine can produce. The argument in "Stimulants" was mainly confined to the question of the effect produced by a positive reduction of the amount of the agent; but some reference was also made (especially in the case of alcohol, as administered by Todd, in frequent fractional doses) to the remarkable changes of effect produced by splitting up one large dose into a number of small ones. Since that time a number of inquirers have been working independently at the question of the small and frequent dose; but, so far, we are not acquainted with any writer who has attacked the subject with more clearness and insight than Dr. Spender. The pamphlet before us is so short that we need not save our readers the trouble of reading it for themselves; but we are very glad to take the opportunity of saying that Dr. Spender has properly corrected an original statement, in "Stimulants and Narcotics," which was too absolute to be justified. It was said in that work that "when a particular symptom, *e.g.* pain, can be relieved only by narcotic doses of any drug, the medicine is probably altogether an improper one for the case." This proposition we still believe to be true for the majority of cases; but Dr. Spender is right in saying that a medicine must be occasionally used (even for the relief of pain) with a distinctly narcotic intention; and that it is possible, by proper precautions, to guard against the evil effects which might otherwise result from it. Dr. Spender's observations are not always as exact and complete as we should like to see them; but we repeat, that they are an exceedingly proper and useful kind of investigations—a kind, moreover, which it is a positive disgrace to our principal teachers of Materia Medica that they have never adequately pursued.

A Small Weiss's Constant Current Battery.—Mr. Foveaux, of Weiss and Son, has submitted to us a convenient form of his constant current battery, which will be made with fifteen to twenty cells only. This is very desirable, because, for all neuralgias, and for a good many cases of paralysis, there is no advantage in the use of a larger number of these cells than twenty, and much less will often suffice. This small battery is exceedingly portable and convenient, and will, of course, be greatly less costly than the large one with fifty cells.

Clinic of the Month.

Kerosene Oil in Chronic Rheumatism.—Dr. Kemp, of Wellington, New Zealand, states that several cases have lately come under his notice in which the internal administration of kerosene has had the most marked effect on chronic rheumatism. The following is one of his cases:—J. H., aged 46, a sailor, had suffered from chronic rheumatism for twenty years. He never had an acute attack. He used to have agonising twinges in his feet and legs; he compared the pain to that which would be produced by the skin being seized by a pair of tweezers and forcibly pulled. The attacks would come on about every ten minutes, and often for three or four days and nights. He had been under medical treatment many times, but had never had more than temporary relief. He began to feel the interval between the attacks lengthen in six weeks after commencing kerosene, and in less than three months the pains had entirely left him. After discontinuing it for some time, the pain slightly returned, but was always cured by taking two or three doses. A teaspoonful was taken in a wineglassful of water every other night. The kerosene produced no unpleasant symptoms, no loss of appetite, no effect upon the bowels or kidneys. Dr. Kemp observes that although kerosene cannot be called a specific for rheumatism, he thinks that the cases he cites are quite sufficient to induce medical men to give it a fair trial. He is unable to find any unpleasant symptom caused by taking kerosene. The great objections with many people to taking it are the unpleasant taste and smell. Some have taken it in water or milk, but he had heard a patient say he could take it best with salt; a pinch of salt being put into the mouth and allowed to dissolve, and the oil then swallowed, mixed with about its bulk of water. Dr. Kemp is not aware of the remedy having ever been used internally, but he hopes some medical men will be found who will give it a trial, and record the results of their cases. Externally, it is of great use in cases of burns, whether severe or slight; it seems to relieve pain more than any other application, especially if resorted to as soon as the injury is received. Cases of severe burns have been known to heal up rapidly under its use alone. (*British Medical Journal*, May 18, 1872.)

Treatment of Bronchocele.—Dr. Morell Mackenzie considers that the treatment of these cases combining safety with success is the conversion of the cyst into a chronic abscess. It must be borne in mind that the great preponderance of these tumours are blood-cysts, and even in the case of those cysts which contain a simple serous or albuminous fluid, the withdrawal of the contents is almost invariably followed by rupture of the capillaries in the gland-structure so commonly contained in some part of the cyst. In carrying out the treatment it is therefore most important that the disposition to hæmorrhage should be checked, and it is fortunate that the treatment which most effectually arrests the hæmorrhage also most rapidly produces suppuration. The method of procedure is as follows:—First, empty the cyst. When practicable, it is well to make the puncture as near as possible to the median line, and to select the most dependent portion of the tumour for introduction of the instrument. As soon as the trocar is felt to pierce the cyst wall it should be withdrawn, and the canula passed further in by means of a blunt-pointed key. The fluid having been withdrawn through the canula, a solution of perchloride of iron (two drachms of the salt to an ounce of water) is injected through the canula by means of a syringe. The plug is reinserted, and the canula secured in position by a strip of plaster. The injection of iron is repeated at intervals of two or three days until suppuration is established. When this point is reached the tube is withdrawn, poultices are applied, and the case treated as a chronic abscess. Where the tumour consists of more than one cyst it may be necessary to make a second or third puncture; but it frequently happens that other cysts can be opened through the cyst originally punctured, and in this way some scars may be avoided. In thirty-nine cases of cystic goitre, thirty-eight underwent treatment. All of these were completely cured. In three cases there was hectic with diarrhœa and temporary emaciation, but these patients completely recovered. After puncture and injection the temperature seldom rises above 101° Fahr. In one case (No. 10) the temperature began to rise on the evening of the third day, when it was 98·8°, till the fifth and sixth day, during which it was 103°. It then gradually fell. In the case of a patient now under treatment in the hospital, in which one cyst communicates with another, the opening in the inner cyst gets occasionally occluded, so that the pus is retained, and this circumstance is always attended with a rise of temperature from 98° or 98·2°, to 101°. (*Lancet*, May 11, 1872.)

Results of Revaccination in Five Hundred Cases.—Dr. J. Halton states that out of this number 179 had scars that

were mostly circular and did not seem to go deeper than the true skin; 106 had scars so slight that they had often to be carefully looked for; and 66 had deep scars of irregular form. In 24 there was no scar, though they stated they had been vaccinated; and 50 stated they had never been vaccinated. In 75 cases the state of the arm was not noted accurately. Of the 179 with circular scars, 10 presented perfect vaccine vesicles. All the others presented the vesicle in a modified form, as a blister, a tubercle, or a scab. There was usually considerable inflammatory redness. Of the 106 who presented slight puckered marks, 9 had on the eighth day perfect vaccine vesicles. The remainder presented irregular vesicles. Of the 66 who had deep scars, 6 showed the perfect vaccine vesicle. Of the 24 with no sign of vaccination, 16 presented the perfect vaccine vesicle, 2 the imperfect vesicle, and 8 failed to present themselves. Eighteen of all the cases failed on the first occasion of revaccination, but on the repetition of the operation it was in nearly all instances successful. In no instance did he succeed in obtaining an approach to a perfect vesicle in a vaccinated child under seven years old. The lymph was in all cases carefully selected, and perfect repose of the arm was enjoined. The conclusions which he thinks may be drawn from his experience are, first, that a large proportion of the population are utterly unprotected by vaccination; second, that vaccination scars, no matter how deep, are no guarantee that the possessor is protected by vaccination; third, that in some constitutions the vaccine influence wears out, as is clearly shown on revaccination, when a perfect vesicle will be produced; fourth, that the operation of revaccination, when properly performed with lymph taken from the *summit* of a vaccine vesicle *without areola* on the eighth day from a healthy child, is entirely unattended with danger, and in the majority of cases with very slight inconvenience; fifth, that there are reasonable grounds for believing that revaccination is to a considerable extent at least an efficient protection against small-pox. (*Dublin Journal of Medical Science*, March 1, 1872.)

Guarana a Remedy for Sick-Headache.—Dr. Wilks wishes to draw the attention of the profession to *guarana* as a remedy for sick-headache, and at the same time to ask for the experience of those who may already have some acquaintance with the drug. His own knowledge of it dates about two years back, when, after the appearance of one of his lectures upon sick-headache, he received a letter from Mr. Helmeken, of British Columbia, enclosing two powders, which he recommended to him with much confidence as able to cure the complaint. He said that, having heard much of the remedy, "I resolved to try the

medicine upon one of my patients who was always coming to me with sick-headache; and sure enough it acted like a charm, and in place of suffering for twenty hours or so, the headache had disappeared in a couple. This accords with what others have told me." Upon the occurrence of Dr. Wilks' first headache after the receipt of Mr. Helmeken's letter, he took the powder, but with only doubtful effect. He therefore did no more than casually mention the medicine to his friends, but did not recommend it. A few weeks ago, after the appearance of a second communication of his in the *British Medical Journal* upon the same complaint, he received a letter from Dr. Wood, of Montreal, in which he also recommended guarana as a remedy for headache, and gave a history of his own personal sufferings and the relief which he had obtained. He says: "By taking one of these powders and remaining quiet when I have felt premonitory symptoms by a beginning of pain always in the right temple (headache on the other side, or in any other part of the head, I never mind), I have carried off the attack, and with the first box absolutely put it off for two months—something which had never occurred in my life before." Upon so good an authority, Dr. Wilks determined to try the remedy in a more systematic manner, and requested his neighbour, Mr. Hooper, the chemist, to procure him a packet of the powders. These he has recommended to several patients and friends; and the result is so encouraging that he has hastened to suggest their trial to his professional brethren. One lady speaks most enthusiastically of their power, as she has now on two separate occasions had her headache arrested by their use. The drug has long been known, for mention is made of it in English and French pharmacologies, but appears never to have come into general use. It consists of the seeds of a tree growing in Brazil, called *Paullinia sorbilis*, and these, according to Johnson, in his "Chemistry of Common Life," are used as we do cocoa. The seeds are ground into powder, and contain an alkaloid which is said to be identical with that found in tea and coffee. The medicine is manufactured by Grimault and Co., No. 7, Rue de la Feuillade, Paris. (*British Med. Journal*, April 20, 1872.)

Treatment of Wounds after Operation.—In a sketch of the major operations performed by Mr. Spence last year in the Royal Infirmary of Edinburgh, Dr. Lediard makes the following remarks:—Carbolised catgut ligatures were used in all cases, and as a rule they were not seen again after the closing up of the flaps. To arteries in their continuity Mr. Spence uses silk. Dry cold was applied immediately after operation to all cases unless there was some special reason to the contrary, the method of application being as follows:—The ice is pounded

into small pieces and put into bags made of gutta-percha, chloroform sealing up the margin and rendering the bag water-tight. The bags are not to be put over the incision, but on either side. The dry cold was not kept on for more than forty-eight hours; in many cases not so long. The majority of cases were dressed, from first to last, with a piece of oilskin dipped in dextrine, over the line of incision, and the entire wound covered with gutta-percha; the benefit of such treatment being that the discharge is not confined, and it is possible to see what is going on without removing the dressing. After the ice is given up the gutta-percha is narrowed to the line of incision, so as not to retain cutaneous transpiration and create moisture, which tends to disorganise the connecting plasma. In all cases stitches were removed as soon as possible, and replaced by ordinary strapping. In three cases of amputation there was reactionary hæmorrhage to small amount, requiring, however, the flaps to be taken down. In the majority of cases small abscesses formed during the healing; these seemed to be of service, allowing the incision to unite, and acting as a drain at a dependent part. The lotions employed were chlorinated soda, sulphate of zinc, chloride of zinc, carbolic acid, Condy, and in some cases simple water. (*Medical Times and Gazette*, April 13.)

Therapeutics of Cutaneous Diseases.—In some notes upon the general principles of cutaneous therapeutics, Dr. Tilbury Fox groups skin diseases into—

1. Those which are purely local.
2. Those which, though mainly local in their origin, are yet *influenced* or modified by different conditions of the general nutrition, or, if the expression be preferred, by constitutional conditions. These diseases, in fact, require mainly local remedies, but demand the use of such as are *general* as *auxiliaries* to cure.
3. Those which arise primarily or directly from disturbance of the general nutrition or system. Here general are the most important, *local* measures being employed as secondary *aids* to cure.

In the first category may be placed warts, the simpler erythemata, and inflammations excited by cold; irritants of all kinds, *e.g.* erythema, simple eczema, herpes, cancer, keloid, fibroma, nævus, atrophia cutis, scleroderma, ichthyosis, and certain parasitic diseases.

In the second category may be placed the simpler forms of inflammation in badly nourished or debilitated subjects: eczema in its severer forms, lichen, impetigo, ecthyma in some of its forms, pemphigus, acne, and probably psoriasis.

Under the third head fall the eruptions of the acute specific diseases: urticaria ab ingestis; medicinal rashes; all diathetic diseases, *e.g.* strumous disease, syphilis, leprosy; cachexias of special kinds, *e.g.* lead-poisoning, malarial poisoning, &c.; chromatogenous (pigmentary) diseases; neurotic diseases, *e.g.* prurigo; and diseases connected specially with disorder of the sympathetic nervous system.

Dr. Fox then enters into details respecting the treatment of that class of diseases which may regarded as local. After considering the treatment of cancer, keloid, and rodent ulcer, he remarks that with regard to vegetable parasitic disease something special must be said, for the difficulties of treatment are oftentimes very great. There are innumerable parasiticides for the destruction of vegetable fungi. Wherever hair is present in any amount, as in the hairy scalp, the fungus finds its way deeply into the follicle, and a difficulty is experienced in bringing parasiticides into contact with its elements; but on the non-hairy parts of the skin there is little trouble in the matter. It will be apparent, therefore, that in the hairy parts early treatment by local measures is of the first importance. The difficulty is one of access to the fungus deeply imbedded in the follicles. If water solutions are prescribed, it is always best to have the greasy matter of the skin removed with soap and water before applying these lotions, because many skins, being very greasy, repel the watery lotions more or less effectually. If unguents are used, they should not be merely smeared on, but well rubbed in so that they may reach the parasites. When it is thought desirable to blister, it should be remembered that the effect may not be felt at the deepest part of the hair follicle in hairy parts, where the most active fungus growth may exist. Rapid and extensive serous effusion may take place in the more superficial layers, and shut off all access, as it were, from the deepest part of the follicles. Dr. Fox is by no means in favour of blistering in chronic cases, though he thinks it of great service where the disease is pretty recent—that is, where the fungus has not invaded the parts very deeply and extensively, and the depth of tissue blistered will include the area invaded by the fungus. In old cases he prefers the continuous contact of the parasiticide in a form that does not vesicate. There is one more point to mention. It is the desirableness of getting away bodily all diseased hairs, which are loaded with fungus elements. This is done by keeping the hair cut close by shaving, and by depilation or extraction of the hairs with forceps. (*Lancet*, May 11, 1872.)

Extracts from British and Foreign Journals.

Treatment of Hydrothorax by Paracentesis Thoracis.—In a thesis read for the M.D. degree of Cambridge, Dr. Evans strongly advocates the propriety of tapping the chest in cases where fluid has accumulated in it as a result of acute pleurisy. He gives a good historical account of the operation, and adds the details of some cases that have fallen under his own observation. The statistics of the mortality after the operation vary, according to whether certain extreme cases are included or not, from 24 to 29 per cent. As circumstances favouring the adoption of the operation, Dr. Evans mentions the following:—1. Pleuritic effusion may of itself cause fatal results, which would be prevented by the early removal of the effused fluid. Trousseau in 1841 knew of no less than from fifteen to twenty instances of sudden unexplained death in cases of large pleuritic effusion. 2. It has been alleged, and Dr. Evans thinks with reason, that the continued compression of a lung by pleuritic effusion is likely to predispose to disease, tubercular or otherwise, of the lung on the other side. An overworked lung must certainly be placed in an unfavourable condition for resisting any noxious influences to which it may be exposed; and should there be any hereditary or other constitutional tendency to disease, such as the so-called tubercular diathesis, he believes that is more likely to be developed in a lung which has extra work to do in consequence of its fellow being incapacitated. Moreover, should a portion of the lungs be rendered useless owing to compression by fluid, in the case of disease attacking any other portion, there will be less spare lung, so to speak, to carry on the work of respiration, and the patient will be exposed to all the more danger. 3. The necessarily slow process of the absorption of the effusion gives time for various changes to take place within the chest, hindering or preventing the re-expansion of the whole or part of the lung; in all probability there would not be time for these changes if the fluid were let out early. Dr. Evans proceeds to point out the futility of the principal objections that have been advanced against paracentesis thoracis—as, that there is danger of death from syncope during or immediately after the operation; that the operation may set up suppurative inflammation; that the admission of air may lead to such suppurative inflammation, and that

hæmorrhage may occur,—and then indicates the advantages it affords, namely, that it is the shortest and simplest method of getting rid of the fluid, at once relieving the patient from distress and dyspnœa, and that it places him at once in a more favourable condition for the absorption of the remaining fluid, or of any subsequent accumulation. In regard to the operation, he thinks the admission of air should be avoided, the puncture should be made in the fifth or sixth interspace in the axillary line, and when the fluid ceases to flow during inspiration, the canula should be removed and the wound closed. (*St. Thomas's Hospital Reports*, 1871.)

Treatment of Subclavian Aneurism.—A long paper on this subject appears in the last volume of the Guy's Hospital Reports, by Mr. Poland, in continuation of a similar one in the preceding volume. In the present paper the principal points taken up are: 1. Ligature of the first portion of the subclavian artery for the cure of subclavian aneurism. Eleven cases are on record of this operation having been performed. As Mr. Poland observes, it is fraught with danger, and is for the most part undertaken against the acknowledged rules laid down for the success of ligature of a large artery in aneurism, the vessel being tied close to the aneurismal sac, at a point where large and important vessels are given off from it, and where it is in proximity with nerves, veins, and the pleura. In some subjects one incision is sufficient, but in fact two will be found requisite. All the cases recorded, with one exception, were of the right subclavian. The operation is pronounced by Ferguson the most difficult in surgery, and it is doubtful whether it should be again attempted, every case having proved fatal, though with different symptoms. The longest duration of life was thirty-six days. 2. Simultaneous ligature of the first portion of the subclavian and common carotid arteries. This operation has also proved uniformly fatal. 3. Ligature of the innominate. This has been performed twelve times without one case of success, though in a case under Graefe the patient lived to the sixty-seventh day. (*Guy's Hospital Reports*, Ser. III. vol. xvii.)

Syphilitic Epilepsy.—Dr. Wilks remarks that any departure from the usual symptoms of a true epileptic attack should excite our suspicion as to its nature and suggest some special exciting cause for it. In the "petit mal" or "grand mal" the loss of consciousness persists but for a minute or so, and after the attack the patient slowly recovers and remains well until the sixth fit. But in albuminuria, or epilepsy arising from a local cause, as syphilis, or in renal and syphilitic eclampsia, as the fits might be called, the paroxysms occur in rapid succession, and coma may exist in the intervals; there may also be convulsion without loss

of consciousness, or the attack may be accompanied by paralysis of one side. These constitute a certain class of symptoms which are at once suggestive of a local cause, as syphilis, even before the history is obtained, especially if there have been a succession of fits occurring at short intervals, accompanied by partial hemiplegia. Under these circumstances the disease may be considered due to a syphiloma between the membranes and brain; and if this be situated in one hemisphere, as is usually the case, the irritation causes the convulsion to be unilateral or predominant on one side, and to be followed by a partial paralysis of that side. At the same time, as only one hemisphere is involved, the consciousness sometimes remains. This peculiarity was noticed as long ago as 1835, by Dr. Bright. Dr. Wilks gives the history of three cases that have fallen under his care, in which great improvement resulted from the administration of the bichloride of mercury and iodide of potassium, remedies which he maintains would certainly not have been given if the symptoms had been judged of alone, and no history of the prior existence of syphilis had been obtained. (Ibid.)

To remove Tar or Resinous Substances from the Skin.—Dr. Brickerd, of Pennsylvania, states that by accident he recently discovered a simple combination that will speedily and effectually remove from glass, porcelain, or the skin, Venice turpentine, tar, pitch, or any sticky substance of a like nature that will resist warm water and soap. It is entirely harmless, and yet it will remove these substances as promptly and as thoroughly as soap and water will remove common dirt. It consists of a mixture of the powdered extract of liquorice and oil of aniseed. This seems to combine with the turpentine, and the vessel may then be rubbed dry and clean with a pledget of cotton. For cleansing tar or pitch from the skin, the mixture should be made about the consistency of thick cream, and rubbed in thoroughly—a piece of good soap, a sponge, and warm soft water will remove the last traces. (*Medical and Surgical Reporter*, Feb. 3, 1872.)

Notes and Queries.

DEPARTMENT OF ANALYSIS AND INVENTION.

OUR attention has been for some time past attracted to the subject of Pepsine and its action as a supplementary digestive agent. Very numerous failures to produce the slightest benefit, even in cases which were apparently the best suited to its employment, caused us at first to suspect a particular specimen of the drug. We determined, however, to carry out a fair and systematic investigation, and accordingly have commenced with the analyses, given below, of the pepsine prepared and sold by three of the most eminent and respectable firms in London. The somewhat remarkable results which have been obtained appear to show that it must be exceedingly difficult to prepare pepsine (on a scale large enough for commercial purposes) which shall possess a high degree of purity and digestive power. We do not, of course, deny that these preparations may have other virtues not purely chemical.

PEPSINE.

Pure pepsine constitutes a yellowish white or grey amorphous powder. It is soluble in water, more readily so in diluted acids, and this solution is not coagulated on boiling, nor does it give precipitates with nitric acid, corrosive sublimate, or tannin. Its most striking characteristic is the power possessed by its acid solution, of dissolving (digesting) many times its weight of coagulated albumen, fibrin, &c., when these substances are digested with the solution at a temperature of 85° to 100° Fahr.

No. I. SAVORY AND MOORE'S PEPSINE.—Labelled, "Pure Pepsine Porci, prepared by Savory and Moore, 143, New Bond Street. Dose, from 3 to 5 grains. This pepsine being a concentrated preparation and slightly hygrometric, it is advisable, when the pepsine is dispensed in the form of powders, to dilute it with from one-fourth to one-half its weight of dry starch."

It constitutes a pale brown powder, only partially soluble in water; the solution is coagulated by boiling, and gives strong precipitates with nitric acid, corrosive sublimate, and tannin. No starch present. Possesses scarcely any digestive power.

No. II. SQUIRE'S.—Labelled, "Pepsine Porci—Squire's." Pale yellowish powder, small part only soluble in water; solution is coagulated by boiling, and gives very strong precipitates with nitric acid, corrosive sublimate, and tannin. No starch present. Very slight digestive power.

No. III. MORSON'S.—Labelled, "Pepsine Porci—Morson's." Pale yellowish powder, small part only soluble in water; solution is rendered slightly turbid by boiling, and gives very slight precipitates with nitric acid, corrosive sublimate, and tannin. Contains 26 per cent. of starch. Extremely slight digestive power.

Some of the analytical details are given in the following Tables:—

TABLE I.

	No. I.	No. II.	No. III.
Moisture	13·85	9·97	9·01
Organic matter soluble in water .	53·19	43·91	24·22
Organic matter insoluble in water.	28·50	44·00	64·00*
Mineral matters	4·46	4·12	2·77
	100·00	100·00	100·00

* Including about 26 per cent. of starch.

TABLE II.

Small cubes of hard-boiled white of egg, digested for three hours and a half with 1 grm. each of pepsine, 100 cub. cent. water, and 0·2 cub. cent. strong hydrochloric acid, at a temperature of 90° to 95° F. Amount of albumen dissolved at the end of that time by the

Pepsine No. I. = 0·026 grms.
,, ,, II. = 0·100 ,,
,, ,, III. = 0·085 ,,

TABLE III.

Thin slices of lean boiled beef, digested for four hours with 1 grm. pepsine, 50 cub. cent. of water, and 1 cub. cent. strong hydrochloric acid, at a temperature of 100° F. Amount of beef dissolved at the end of the four hours, in the case of

Pepsine No. I. = 0·032 grms.
,, ,, II. = 0·360 ,,
,, ,, III. = 0·160 ,,

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[1] Any of the foreign works may be procured on application to Messrs. Dulau, of Soho Square, W.C.; or Williams & Norgate, of Henrietta Street, Covent Garden, W.C.

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